

**Customer Information
Control System/Virtual
Storage (CICS/VS)
Version 1 Release 5**

Program Product

Operator's Guide

**Program Numbers 5740-XX1 (CICS/OS/VS)
5746-XX3 (CICS/DOS/VS)**



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This edition, as amended by Technical Newsletter (TNL) SN33-6269, applies to Version 1 Release 5 (Version 1.5) of the IBM program product Customer Information Control System/Virtual Storage (CICS/VS), program numbers 5746-XX3 (for DOS/VS) and 5740-XX1 (for OS/VS).

This edition is based on the CICS/VS Version 1.4.1 edition, and changes from that edition are indicated by vertical lines to the left of the changes. Note, however, that the 1.4.1 edition remains current and applicable for users of Version 1.4.1 of CICS/VS.

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Preface

This publication is intended for CICS/VS terminal operators and persons responsible for preparing terminal operating procedures. It includes information on initiating transactions supplied with CICS/VS, for controlling elements of the system, for message switching, for collecting statistics, and for retrieving terminal error information. It also describes the use of the processor console as a CICS/VS terminal.

For further information concerning CICS/VS, see the following IBM publications:

Customer Information Control System/Virtual Storage (CICS/VS) Version 1 Release 5:

- General Information, GC33-0066
- Application Programmer's Reference Manual (Macro Level), SC33-0079
- Application Programmer's Reference Manual (Command Level), SC33-0077
- Application Programmer's Reference Manual (RPG II), SC33-0085
- System Programmer's Reference Manual, SC33-0069
- System Programmer's Guide (DOS/VS), SC33-0070
- System Programmer's Guide (OS/VS), SC33-0071*
- Messages and Codes, SC33-0081
- System/Application Design Guide, SC33-0068
- Data Areas (DOS/VS), LY33-6033
- Data Areas (OS/VS), LY33-6035*
- Diagnosis Reference, LC33-0105
- Master Terminal Operator's Reference Summary, SX33-6011
- Program Debugging Reference Summary, SX33-6010
- Problem Determination Guide, SC33-0089
- Application Programmer's Reference Summary (Command Level), GX33-6012
- Entry Level System User's Guide (DOS/VS), SC33-0086
- IBM 3600/3630 Guide, SC33-0072
- IBM 3650/3680 Guide, SC33-0073
- IBM 3767/3770/6670 Guide, SC33-0074
- IBM 3790/3730 Guide, SC33-0075

- IBM 3470 Guide, SC33-0096
- Master Index, SC33-0095*

* Available at the same time as CICS/OS/VS Version 1 Release 5.

| In this publication, term VTAM refers to ACF/VTAM, to ACF/VTAME
| (CICS/DOS/VS only), and to the Record Interface of ACF/VTAM (CICS/OS/VS
| only). The term TCAM refers both to TCAM and to the DCB Interface of
| ACF/TCAM. The term BTAM refers to BTAM (CICS/OS/VS only) and to BTAM-ES
| (CICS/DOS/VS only). For further details of system requirements, refer
| to the publication CICS/VS General Information.

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Summary of Amendments for Version 1 Release 5

This edition (SC33-0080-2) provides information about the new or enhanced features introduced by CICS/VS Version 1 Release 5, as follows:

- New Master Terminal Transaction

Enhanced Master Terminal, Supervisory Terminal, and Ordinary Terminal transactions replace the existing transactions

- CEMT replaces CSMT
- CEST replaces CSST
- CEOT replaces CSOT

CSMT, CSST, and CSOT are still supplied with CICS/VS, but they do not include the new functions provided by CEMT in CICS/VS Version 1.5. Furthermore, CSMT no longer supports the IRC operand. Transactions involving IRC must be performed using CEMT.

- Hardware Fault Diagnosis Facilities

CICS/VS Version 1.5 contains new facilities to help diagnose hardware faults.

- CSFR is a new transaction, applicable only to CICS/DOS/VS, that retrieves communication error data which has been collected automatically by the Facility Error Recognition System (FERS)
- CSFE has been extended, enabling control of the Activate Scan Trace and monitoring of the Storage Accounting Areas.

- The Routing Transaction (CRTE)

The routing transaction enables an operator to run a transaction that resides on a remote system.

- OS/VS Console Support

An OS/VS System Console can be used as a CICS/VS terminal.

- Security Enhancements

CICS/VS provides the following:

- Free-format sign-on command
- Password changing and eight-character passwords, if external security is used.
- Invocation of an interface to an extended security facility.
- Interface to OS/VS2 Resource Access Control Facility (RACF) program product.

- Statistics

Lists of statistics produced by the CSTT transaction have been removed from this manual, and can be found in the CICS/VS System Programmer's Reference Manual.

- Monitoring Facilities

A new function of the CSTT transaction enables an operator to initiate (or terminate) recording of accounting, performance, and exception data.

In addition to these technical changes, information in the manual has been reorganized for easier reference.

Summary of Amendments for Version 1 Release 4.1

This technical newsletter (SN33-6245) provides information about the new or enhanced features introduced by CICS/VS Version 1 Release 4.1, as follows:

- Chapter 2. Terminal Operator
 - Non-display sign-on is introduced for IBM 3270 devices.
- Chapter 3. Master Terminal Operator
 - A section entitled "VTAM" has been added to Chapter 3. It contains the "Open VTAM ACB" section, which previously appeared on page 50, and describes the new VTAM ACB Dynamic Close commands.

Summary of Amendments for Version 1 Release 4

This edition (SC33-0080-1) provides information about the new or enhanced features introduced by CICS/VS Version 1 Release 4, as follows:

- Terminal operator commands
 - extensions to the CSSF sign-off commands
 - extensions to the CSFE terminal test transactions; for example, improved trace facilities, the storage freeze facility, and the Execution (Command Level) Diagnostic Facility (EDF)
- Master terminal operator commands
 - starting, terminating, and inquiring about the status of shared data base sessions between CICS/OS/VS and DL/I batch regions
 - changing the service status of terminals that are used in an intersystem communication session
- Supervisory terminal operator commands
 - changing and inquiring about the status of terminals, control units and lines
- Statistics produced during intersystem communication sessions and shared data base sessions between CICS/OS/VS and DL/I batch regions

Certain information on terminal subsystems and logical device codes has been removed from this manual. The information now appears in the appropriate CICS/VS IBM subsystem guides.

In addition, Technical Newsletter SN33-6224 made the following major changes to the manual.

- Chapter 2. Terminal Operator
 - Further information on the CSSF LOGOFF option has been added for BTAM terminals.
- Chapter 3. Master Terminal Operator
 - Information on disabling programs and associated transactions has been added.
- Chapter 7. Statistics
 - Information on the form of CICS/VS statistics has been included.

Chapter 1. Introduction

CICS/VS supports operations, usually initiated from terminals, called tasks. Each task invokes the use of particular tables, programs, and internal services, which define a transaction. Some transactions are supplied by CICS/VS, but the majority are written by the user. This publication deals only with CICS/VS-supplied transactions.

Communicating with CICS/VS

In general, a terminal operator initiates a CICS/VS task by entering a one-to-four-character transaction identification code. The transaction code is used by CICS/VS to identify the application program that will handle the specified transaction, and to establish a task to execute that application program. By entering a simple transaction identifier, an operator can thus, for example, make inquiries about the contents of a data base, update or add to the contents of a data base, or perform calculations, the results of which may be returned to the terminal. Subsequent communication arising from initiating a transaction depends upon the type of transaction specified.

When 3270 or similar display devices are used as terminals, program function and program access keys, an operator identification card reader (OPID), a magnetic stripe reader (MSRE), or a light pen (LPA) can be used to initiate transactions.

In subsystems such as the 3790 or 3600, where such subsystems are connected via Synchronous Data Link Control, terminal operators communicate with a subsystem controller. Their terminal operations may not involve communication with CICS/VS (the host system), and even if such communication does take place, it may not be apparent to the terminal operators. Operations of this type are not discussed in this publication.

However, subsystems can be configured to allow terminal operators to appear to communicate directly with CICS/VS, inasmuch as the subsystem controller is simply passing messages between CICS/VS and the terminal. For users of such systems this publication will include any special information considered to be within its scope. Otherwise, the publication will refer the reader to the relevant CICS/VS subsystem guide.

Performing Transactions

Broadly speaking, transactions fall into two categories:

- Single-entry transactions - Transactions that require no further action by the operator.
- Multiple-entry transactions - Transactions that require further action by the operator.

The multiple-entry category can be further subdivided into:

a. Conversational transactions

b. Data-entry transactions

A programmer determines the form of communication when he writes the application program for the transaction. CICS/VS-supplied transactions can be used as single-entry transactions by entering data in a single line. If insufficient data is supplied, or data is not valid, however, the transaction starts a conversation to obtain more information.

Depending upon the transaction, additional data may be presented along with the transaction code, for example in the single entry transaction:

```
AAAA      JOHN DOE, 12489
```

In this example, a CICS/VS transaction identified as AAAA is initiated to process the data submitted with the transaction code. At the completion of transaction AAAA, a completion message might be transmitted to the terminal, such as:

PROCESSING COMPLETE

The conversational type of transaction may require that the terminal operator answer a series of specific questions. For example:

```
Operator enters:      STAT
CICS/VS responds:    **WHAT IS STUDENT ID?
Operator enters:      12345
CICS/VS responds:    **WHAT INFORMATION IS REQUIRED?
Operator enters:      GPA
CICS/VS responds:    **GRADE POINT AVG=3.67
CICS/VS responds:    **END OF TRANSACTION
```

Data-entry transactions may require little or no interaction between CICS/VS and the terminal operator. The following example is typical of this type of transaction:

```
Operator enters:      UPDT
CICS/VS responds:    **BEGIN DATA INPUT, KEY 'END' WHEN
                    FINISHED
Operator enters:      123 A
Operator enters:      456 B
Operator enters:      789 C
Operator enters:      363 A
Operator enters:      END
CICS/VS responds:    **TRANSACTION COMPLETE
```

| **Note:** If the transaction identification code is fewer than four
| characters, a blank, EOT, new-line, field-separator, or field-name-start
| character must follow the last character of the transaction code. The
| field-name-start character and the field-separator character are defined
| by the system programmer when CICS/VS is generated.

| **CICS/VS Service Programs**

| A number of system service programs, which run as transactions, are
| provided by CICS/VS. Some of the functions they perform are required
| and others are optional. Service functions of interest to terminal
| operators are discussed as appropriate in this manual. Details of all
| provided functions and relevant transaction identification codes are
| given in the CICS/VS System Programmer's Reference Manual. Some of the
| transaction identification codes listed in that manual are for CICS/VS
| use internally. They cannot be entered at a terminal, and are not
| discussed in this manual.

| **CICS/VS Supplied Transactions**

| Appendix C is a list of all supplied-transaction identifiers which can
| be entered at a terminal.

| **Symbols Used in this Manual**

| In this manual, the description of each supplied transaction is
| accompanied by a command syntax summary. When using such a summary to
| construct a command, the following points should be noted:

- | • Uppercase letters, digits, and special characters must be entered
| as shown.
- | • Lowercase letters indicate information to be supplied by the user.
- | • Braces { } denote that at least one item must be selected. A
| vertical bar is used to indicate a choice.
- | • Square brackets [] indicate optional portions of a command.
- | • Parentheses () in a request format act as delimiters. They must
| appear in CICS/VS requests, unless the command description states
| otherwise.
- | • INQ is used to inquire about a system parameter.
- | • n, a numeric parameter, is used to specify a change in a system
| parameter.
- | • An ellipsis (...) indicates that the preceding item or group of
| items may be repeated.
- | • ⌘ indicates that the user is to key in a blank.

- Parameter list keywords and maximum lengths of their parameters are:

```

PGRMID=xxxxxxx (8 characters)
FILEID=xxxxxxx (7 characters for VSE, 8 characters for OS/VS)
DESTID=xxxx (4 characters)
TERMID=xxxx (4 characters)
TRANID=xxxx (4 characters)
CLASID=xx (2 characters)
SUPRID=xx (2 characters)

```

Note: FILEID is specified as a 7 character field in examples, unless the example is for CICS/OS/VS only.

- Appendix A contains a complete list of all keywords used, their meanings, and permissible abbreviations. The reader's attention is directed to the information, at the beginning of Appendix A, regarding the length of abbreviations.
- In all examples, the words "Enter" and "Receive" are used specifically to differentiate between operator input and a CICS/VS response.
- Users of the CICS/DOS/VS Entry Level System are restricted to those master terminal functions that are indicated by an asterisk (*).

Chapter 2. Terminal Operators

There are normally considered to be three classes of operators in a CICS/VS system. They are ordinary terminal operators, supervisory terminal operators, and master terminal operators.

A CICS/VS ordinary terminal operator uses a terminal to perform routine transactions which cause application programs to be executed. He can use a small selection of CICS/VS supplied transactions. For example, he can inquire about, or change, the status of his own terminal.

As well as performing his duties as an ordinary terminal operator, a supervisory terminal operator can supervise other operators within a functional group. His security code gives him access to the supervisory terminal transaction (CEST or CSST), which enables him to monitor and control the system resources used by his group.

A CICS/VS master terminal operator can monitor and control all resources in a CICS/VS system. The system identifies him by his security code at sign-on, and allows him to use the master terminal transaction (CEMT or CSMT).

The transactions which a terminal operator can initiate are defined by the operator security code, which is normally provided when the operator signs on using the CSSN transaction. For further information, see the CICS/VS System/Application Design Guide.

Normally, the master terminal operator has access to all CICS/VS-supplied transactions, the supervisory terminal operator has access to a subset, and the ordinary terminal operator has access to very few transactions. In this book, however, all transactions except CEMT, CEST, CSST, and CSMT are considered to be available to all operators.

The user is responsible for allocating security codes to restrict the use of particular transactions.

CICS/VS 1.5 offers new intercommunication facilities: multiregion operation (MRO) enables the operator of a terminal assigned to one CICS/VS region to run transactions in connected CICS/VS regions in the same processing unit. Also, it enables application programs to address resources attached to other CICS/VS regions. Intersystem communication (ISC) permits distributed transaction processing. This means that a transaction initiated within one CICS/VS system can communicate directly with a transaction running in a remote processing unit.

These processes, which make more efficient use of resources in a network, are completely transparent to the operator. Nevertheless, he can experience increased response times when using the facilities.

Ordinary Terminal Operator

To perform his prescribed duties, the terminal operator must have certain information about the terminal. For example, he must know the exact information to be entered from his terminal in order to sign-on to the system. This information includes his password and identification.

During sign-on, the name of the terminal operator is entered at the terminal and is used by CICS/VS to establish a priority and a security key for the transactions he may subsequently perform.

A security key default option allows transaction requests with a transaction security key of 1 to be made by the operator without the sign-on procedure.

Once signed on, the terminal operator must be aware of those transaction identification codes he is allowed to enter. He should also be aware of any error messages that might be generated by the transactions he invokes, as well as any corrective action that must be taken. In addition to the error messages, the terminal operator should be aware of any other messages that CICS/VS might transmit to his terminal. A terminal operator must know the identifiers of terminals with which he wishes to communicate.

| A CICS/VS operator using an IBM 3279 display can benefit from some of
| the special features incorporated in the device. The new features
| available are color, highlighting, validation, and programmed symbols.

| Operators are advised to press the CLEAR key after performing a
| transaction which uses special display features. This resets the
| display to the default state.

TERMINALS ON SWITCHED LINES (DIAL-UP)

The operator of a BTAM terminal connected to the system over a switched (dial-up) line must be aware of some situations in which CICS/VS depends upon the operator.

If the line connection is established by the terminal operator (that is, operator dials to establish line connection), the terminal must be identified to CICS/VS by the operator. To accomplish this, the operator may have to enter a one- to four-character terminal identification assigned to that terminal, immediately after line connection is established. If the identification is valid, the system responds with a READY message. Normal operation then may proceed. If identification is invalid, an error message is returned and the terminal is disconnected. The READY message does not occur on programmable binary synchronous devices, or on the 3275. For details of conditions under which the terminal operator does not need to enter a terminal identification, see the ANSWRBK operand in CICS/VS System Programmer's Reference Manual.

| Supervisory Terminal Operator

| A supervisory terminal operator is the supervisor of any part of the
| system for which group control is desired. He is responsible for
| supervising, and keeping operational, groups of terminals in a
| designated terminal list table (TLT). He achieves this using the
| CICS/VS supervisory terminal transaction (CEST or CSST).

| The supervisory terminal operator's responsibilities can be thought
| of as a subset of those of the master terminal operator, and he should
| be aware of those functions he can perform that are not available to the
| terminals under supervision.

| The supervisory terminal operator should know the identity of all
| terminals and operators under supervision. The terminal identifiers are

| found in the terminal list table (TLT) which has a suffix the same as
| the one- or two-character identification supplied by the parameter-list
| keyword SUPRID.

| The supervisory terminal operator should be aware of, and understand
| the procedure for changing, the status of each terminal.

| IDENTIFYING TERMINALS

| A group of terminals under the control of the supervisory terminal
| operator is known as a class of terminals and is defined by a terminal
| list table (TLT), details of which are given in the CICS/VS System
| Programmer's Reference Manual.

| The supervisory terminal operator can specify a class or a list of
| terminals. A class of terminals is specified by CLASID=xx, where CLASID
| is the parameter-list keyword and where xx is the suffix which makes
| DFHTLTxx a unique name for the particular TLT. A list of terminals is
| specified by the parameter-list keyword TERMID. That is, TERMID=t1,
| t2...

| The TLT by which either the class or list of terminals is defined is
| required so that the supervisory terminal operator can identify
| terminals under his control as a list or class when it is required to
| exercise some supervisory function. The interaction between the
| computer and the supervisory operator requires either the parameter-list
| keyword SUPRID, followed by the supervisor's two-character key, the
| terminal class identification introduced by the CLASID keyword, or both.
| The response given as input to the computer must be the same two
| characters as those that form the suffix appended to the name of the
| appropriate TLT.

| REQUESTING SUPERVISORY TERMINAL SERVICES

| When supervisory terminal services are requested, the original input may
| indicate the service to be performed, and may in fact be sufficient
| information for the service to be performed. To request a service, the
| supervisory terminal operator enters CEST (or CSST) followed by the
| request.

| SUPERVISORY TERMINAL SERVICES

| The supervisory terminal transaction can be used to control:

- | • Terminals
- | • Control units and lines
- | • Tasks

| Note: Unless otherwise stated, the information about the supervisory
| terminal and its transaction, given in this book, applies only to a
| single CICS/VS system, regardless of whether it is connected to another
| CICS/VS system through ISC or MRO.

Master Terminal Operator

A requirement of a data base/data communication (DB/DC) system is that system control parameters can be changed dynamically. Under CICS/VS, primary system control is provided by the master terminal transaction (CEMT or CSMT), which is detailed in chapters 4 and 5. Although the transaction may be invoked at any valid terminal, its use is intended to be limited, by sign-on and security key, to a person known as the master terminal operator. The system control permitted through CEMT and CSMT allows the master terminal operator to improve system performance by changing control parameters in the day-to-day operation of the system. In addition to system control, the master terminal operator has prime responsibility for administering the system's terminal facilities.

By using the routing transaction (CRTE), a terminal operator can be a master terminal operator for multiple connected CICS/VS systems. CRTE is described in Chapter 3.

The master terminal operator can have access to all ordinary terminal and supervisory terminal transactions. In addition, however, he must be familiar with all procedures associated exclusively with the master terminal. He must be aware of which terminals and operators can access CICS/VS at any given time, and of the identities by which they are known to CICS/VS. He must also know the TCTTE identifier of each parallel intercommunication (ISC or MRO) session. This identifier must be specified when operating on the session.

The master terminal operator is normally the only individual allowed to effect changes to various system operating parameters. He should know the effects such changes have on system performance, and thus should understand how CICS/VS works.

Use of the master terminal transaction should be restricted by entries in the sign-on table and in the program control table. This is the responsibility of the system programmer and is explained in the CICS/VS System Programmer's Reference Manual.

Note: During long periods of continuous operation, the master terminal operator can periodically enter a transaction (using transaction identification CSTT and the appropriate parameters) to read out and reset the statistics counters. (See "Requested System Statistics" in Chapter 8.) The volume of activity in the user's system determines how frequently this must be done.

MASTER TERMINALS

Master terminal functions can be invoked at any terminal unless that terminal by its very nature does not permit the master terminal function, for example, the IBM 3606/3608 terminals. However, the IBM 3270 devices are best suited to the task.

MASTER TERMINAL SERVICES

The master terminal can be used to inquire about and change many CICS/VS system parameters. Upon the satisfactory completion of a response to a service request, the time and date are printed or displayed at the terminal:

```
TIME=hh.mm.ss    DATE=mm/dd/yy
```

where the time is in hours, minutes, and seconds, and the date is in months, days, and years. (A system generation option is available to change the order of the months, days, and years). For brevity this final message has been deleted from all examples.

Here is a list of the system components and parameters which can be monitored and controlled by the master terminal operator.

- Time and interval
- Wait count and storage cushion
- Tasks
- Transactions
- Programs
- Data sets
- Terminals
- Remote control units and lines
- Trace and auxiliary trace
- VTAM ACB
- Interregion communication
- CICS/VS shutdown
- Formatted dumps.

Note: Unless otherwise stated, the information about the master terminal, and its transactions, given in this book applies only to a single CICS/VS system, regardless of whether or not it is part of a CICS/VS intersystem communication link.

Chapter 3. Ordinary Terminal Transactions

This chapter describes transactions which can be initiated by all operators. In practice, use of some of the transactions by certain operators, or classes of operators, will be unnecessary or undesirable. Operator security codes can be used to limit an operator's transaction repertoire.

The following is a list of the transactions described in this chapter. It includes all CICS/VS supplied transactions except the supervisory- and master-terminal transactions, which are described in later chapters. CSFE, CSFR, CMSG, and CSTT are also described in later chapters, and are only mentioned briefly here.

<u>Transaction description</u>	<u>Identifier</u>
Sign-on/sign-off	CSSN (9999), CSSF (8888)
Terminal status	CSOT
Write to console operator	CWTO
Command Interpreter/Checker	CECI, CECS
Execution (Command Level) Diagnostic Facility (EDF)	CEDF
BMS terminal paging	CSPG, and also user-defined commands
Batched transaction entry	CATP, CRDR, CWTR
The routing transaction	CRTE
Message switching	CMSG (or user-defined ident.)
Statistics	CSTT
Terminal test, trace, storage freeze	CSFE
Facility Error Recognition	
System (FERS)	CSFR

Terminal Sign On/Sign Off

The optional sign-on/sign-off procedure, described in this section, can be used for a terminal operator to sign on to or off from the system. Whether or not it is used will depend on the way the user has set-up his system. Sign-on establishes:

- Operator identification
- Operator priority value
- Operator security keys

When sign-off is performed, the connection between the operator and CICS/VS is broken.

SIGN-ON (CSSN)

Sign-on enables CICS/VS to associate a terminal operator with his terminal. It also establishes security keys and an interface to an external security manager, if requested, to be used by CICS/VS to verify all subsequent transactions entered at that terminal.

| If the CICS/VS system uses an external security manager, an operator
| can change his password at sign-on. He can also be prompted by the
| system when a new password is required. If the system uses the existing
| internal security facilities, the password cannot be changed, and the
| "newpassword" operand (see below) will be ignored if it is entered.

| The operator password and name must each match, exactly, the relevant
| entries previously established in the sign-on table (or those defined to
| the external security manager). If they do not, sign-on will be
| impossible.

After sign-on, the following message is returned to the terminal:

| DFH3504I SIGN-ON IS COMPLETE

| Note: Fixed-format terminals (such as the 3614, the 3653, and the 3608)
| cannot issue a sign-on.

| The sign-on instruction can have one of four forms:

| 1. At an IBM 3270 Screen

| The operator types "CSSN", and receives a screen of the following
| format:

PLEASE SUPPLY PERSONAL DETAILS

NAME=

PASSWORD=

NEWPASSWORD=

INCLUDING NEW PASSWORD

| Sign-on is performed by positioning the cursor to the "NAME" and
| "PASSWORD" entry fields, and typing the operator's name and password.
| The password can be changed by typing a new password into the third
| entry field. This change might be demanded by the security management
| program message "INCLUDING NEW PASSWORD".

| The password and newpassword entry fields are "dark" fields. This
| means that text typed into the fields remains invisible. Care should
| therefore be taken when typing into these fields, as the text cannot be
| checked visually.

| A name can be up to 20 characters long, and a password can be up to
| eight characters long.

| 2. At an IBM 2741 Terminal

| The display which is sent to the IBM 2741 printer terminal is similar
| to the IBM 3270 screen display, but the relevant entry fields are
| obliterated by overtyping before the password and newpassword are
| requested.

3. At Any Terminal with a Full Keyboard

Request format:

CSSN PS=pppp,NAME=name,NEWPS=password

(Equal (=) signs and commas (,) can be replaced with blanks)

| CSSN

The sign-on transaction identification code.

pppp

A password up to eight characters long.

name

A character string of up to 20 characters, specifying the name of the operator.

password

A new password, up to eight characters long, to replace the existing, or expired, password.

Notes:

a. Sign-on in FREE FORMAT. This means that the PS, NAME, and NEWPS operands can be specified in any order.

b. If a keyword is used as data, commas must be used as delimiters. For example:

CSSN PS=PS,NAME=NAME

c. If a name contains special characters, such as blank or quote characters, it must appear in quotes. Quote characters in the name should be entered twice. For example:

CSSN NAME='SMITH'S COMPANY',PS=KEY

4. At Any Terminal Except Fixed-Format

Request format:

9999ppppnnnnnn

9999

The sign-on transaction identification code.

| PPPP

A password up to eight characters long.

nnnnnn

A number (up to 20 digits) identifying the operator.

Operator Priority

Once a terminal operator has signed on to CICS/VS, his operator priority will influence the priority of transactions entered at his terminal.

SIGN OFF (CSSF)

Sign-off breaks the connection between the terminal operator and CICS/VS, sends a message to the message log (transient data destination CSML), writes the sign-off message to the terminal, and logs the message on the transient data destination CSCS.

Note: Fixed format terminals (such as the 3614, the 3653, and the 3608) cannot issue a sign-off.

Request format:

CSSF [GOODNIGHT | LOGOFF]

CSSF

If only CSSF is entered, the operator is signed-off, and the terminal is automatically placed in TRANSCEIVE status by CICS/VS. After a CSSF sign-off, an operator can sign on at that terminal at any time.

CSSF GOODNIGHT

If this is entered, both the terminal and the operator are signed-off. In the case of VTAM terminals, the connection is broken, all transmission ceases, and the terminal is given RECEIVE status (so that next time connection is made, the terminal will be able to receive messages.)

A BTAM terminal which is connected through a leased line is given RECEIVE status and so can still receive messages.

CSSF LOGOFF

If this is entered at a VTAM terminal, the connection is broken, all transmission ceases, but the terminal status remains unchanged.

At a switched BTAM terminal, the LOGOFF option disconnects the terminal. That is, it performs the same function as CSSF GOODNIGHT but leaves the terminal in TRANSCEIVE status so that the operator may sign on or enter other transaction identifications when the terminal is reconnected. For non-dial BTAM terminals this is equivalent to typing CSSF only.

If sign-off is successful, the following message is returned to the terminal:

DFH3506I SIGN-OFF IS COMPLETE

Sign-off at Numeric-only Terminal

Request format:

8888 (to specify CSSF)
or
88888888 (to specify CSSF GOODNIGHT)

Terminal Status (CSOT)

A terminal has a processing status, a page status, and a service status. These are defined in the terminal control table (see the CICS/VS System Programmer's Reference Manual). Transaction CSOT can be used to inquire about, and change, terminal status. Service status cannot be changed using CSOT. The ability to change either processing status or page status may be affected by the physical characteristics of the terminal.

The enhanced terminal status transaction (CEOT) is intended to replace CSOT. This transaction is described in Chapter 4.

Neither CEOT nor CSOT can be used in conjunction with the Routing Transaction (CRTE).

Request format:

CSOT [INQ|TRNACT|TRNCV|REC|INP|AUTOP|PAG]

INQ

The terminal operator is inquiring about the status of his terminal. The response will be a list of processing status, page status, and service status. INQ does not change the terminal status.

TRNACT

Changes the processing status to TRANSACTION. The terminal can initiate transactions and receive messages on request (see Basic Mapping Support, later in this chapter).

TRNCV

Changes processing status to TRANSCEIVE. The terminal can initiate transactions, and messages can be sent automatically to it. When the terminal is a screen, this option should be used with care to avoid overwriting data displayed on the screen.

| REC
 | Changes processing status to RECEIVE. The terminal can receive
 | messages, but cannot send them. When the terminal is a screen,
 | this option should be used with care to avoid overwriting
 | existing messages inadvertently.

| INPUT
 | Change processing status to INPUT. The terminal can send
 | messages, but cannot receive them.

| Note: The IBM 3270 cannot have INPUT status.

| AUTOP
 | This operand instructs the Basic Mapping Support (BMS)
 | component to change the terminal page status to AUTOPAGE. Upon
 | request, all pages in a page set are written automatically to
 | the terminal. This option should never be used with a video
 | device.

| PAGE
 | This operand instructs the Basic Mapping Support (BMS)
 | component to change the terminal page status to PAGE. The
 | first page in a page set is written to the terminal when it is
 | available. All other pages in the set are written upon request
 | from the terminal operator. For details of how to request
 | pages, see "Basic Mapping Support", later in this chapter.

| xxx
 | If an invalid request is made, or the operator only enters
 | CSOT, CICS/VS lists the keyword options and waits for a valid
 | keyword entry.

| CANCEL
 | The operator cancels the CSOT transaction.

| Note: The service status of a terminal can be one of the following:

OUT OF SERVICE
 Terminal service status is OUT OF SERVICE. No reading or
 writing can be performed by the terminal.

IN SERVICE
 Terminal service status is IN SERVICE. The terminal is
 operational, and can process according to its processing
 status.

The following are examples of the use of transaction CSOT.

1. Operator enters: CSOT TRNCV
CICS/VS response: STATUS IS
IN SERVICE
TRANSCIVE
PAGE
TIME=10.05.30 DATE=10/01/75
2. Operator enters: CSOT TRNACT
CICS/VS response: STATUS IS
IN SERVICE
TRANSACTION
PAGE
TIME=10.05.30 DATE=10/01/75
3. Operator enters: CSOT INQ
CICS/VS response: STATUS IS
IN SERVICE
TRANSACTION
PAGE
TIME=10.05.30 DATE=10/01/75

| Write to Console Operator (CWTO)

The terminal operator can use transaction CWTO (CICS/VS Write To Operator) to send messages to the processor console operator.

Request format:

CWTO [message to be sent]

- The message can be more than one line long. If any line exceeds the line width of the console, the text will be divided between words into multiple lines.
- New Line (NL) characters within the message are kept, except that a leading NL character is deleted. Blank lines can be included at the top of the transmitted message, by entering the requisite number of carriage returns.
- One or more backspace characters can be entered (for deletion) as required, within the same input.
- Each part of a divided message will be prefixed by the identifiers of the originating terminal and the terminal operator. Under OS/VS, but not under VSE, the message prefix will also contain the job name.

The write-to-operator transaction can be canceled by entering CANCEL as the last six characters of the message.

If the terminal operator initiates the CWTO transaction without message text, the transaction becomes conversational.

CWTO RESPONSES

Every CWTO message from the terminal receives one of the following responses:

MESSAGE HAS BEEN SENT

The message has been routed to the processor console. This is the normal completion message.

ENTER MESSAGE

One of the following occurred:

- No message was entered after the transaction identification code CWTO.
- The message consisted entirely of blank characters.
- The number of deletion characters entered caused the deletion of all of the data.

The transaction remains conversational.

NO INPUT - REENTER

The transaction is conversational and the following occurred:

- The number of deletion characters entered caused the deletion of all data.
- Only blank characters were entered.

The terminal remains in conversational mode.

TERMINATED BY OPERATOR

The terminal operator has canceled the write-to-operator transaction by entering CANCEL as the last six characters of the input.

The transaction is terminated.

| Command Interpreter

| The command level interpreter enables an application programmer to enter
| a CICS/VS command, check its syntax, and, if required, modify and
| execute it from an IBM 3270 screen.

| Two CICS/VS transaction identifiers are provided for communication
| with the interpreter: CECI performs all of the functions described
| above; CECS provides a command syntax checking facility, but does not
| permit command execution. Use of CECI can be limited, by security code,
| to selected operators.

| For information about using the command interpreter, see the CICS/VS
| Application Programmer's Reference Manual (Command Level).

| Execution (Command Level) Diagnostic Facility (EDF)

The transaction CEDF tests application programs written using the
command (EXEC) level programming interface.

For the transaction to be available, the code CEDF and the associated
systems service program must have been specified at system generation
time by the system programmer.

Request format:

CEDF termid[,ON|,OFF]

If the terminal identification (termid) is omitted, the terminal at
which the CEDF transaction is entered is assumed. If both ON and OFF
are omitted, ON is assumed.

For further details of the use of EDF, see CICS/VS Application
Programmer's Reference Manual (Command Level).

Basic Mapping Support (BMS) Terminal Paging

Basic mapping support (BMS) facilitates the manipulation of pages or
messages, using terminal paging commands.

Some transactions, especially those performed on screens, produce a
response which is too large to be displayed or printed at one time. The
whole response is held on disk storage, and only the first portion
(page) is displayed. The operator can use terminal paging to view all
pages of the response, in any order. All the pages produced by a
transaction make up a logical message.

When using BMS for IBM 3780 transactions, the following feature
switches should be set OFF:

SPACE COMPRESS EXPAND (standard feature)
TRNSPCY (special feature)
INHIBIT IRS (special feature)

TERMINAL PAGING COMMANDS

Pages or messages are manipulated by terminal paging commands.

Any pages or messages to be manipulated with basic mapping support (BMS) terminal paging commands must have been created by BMS. Also, BMS must be active in the system to service the commands.

There are four terminal paging commands available to manipulate the pages:

1. Retrieve a page.
2. Chain a logical message; that is, retain the previous logical message on disk while a new transaction is entered.
3. Terminate or purge (only one terminal's message is purged) a logical message or messages (erase it from disk storage).
4. Copy a page to another terminal.

PAGE RETRIEVAL

Request format:

```
getpage[ (a) ][b][*ldc|*ALL][,hhhhhh]
```

getpage

is the user-defined identification code for the retrieval transaction, and is one to seven characters long. For convenience, the code should be as short as possible; for example, P/. Care should be taken when choosing a code, as it should NOT be the same as the first part of a transaction identifier.

a

is the level, within a chain of logical messages (see "Message Chaining", later), of the logical message to be retrieved. It must be enclosed in parentheses, and can be one of the following:

- n - retrieve a message at level "n".
- +n - retrieve a message "n" levels forward
- n - retrieve a message "n" levels backward
- P - next previous level
- C - current level
- N - next level forwards
- L - last (final) level

For further information see "Message Chaining", later.

| b
|
| defines the next operation to be performed by the page
| retrieval program upon the logical message at the current
| level, or at the level specified by (a). It can be one of the
| following:

|
|
| n - retrieve a particular page - number "n"
| +n - retrieve a page "n" pages forward
| -n - retrieve a page "n" pages backward
| C - redisplay the current page (after clearing screen)
| N - retrieve the next page
| P - retrieve the previous page
| L - retrieve the last (final) page
| A - for an autopaging (that is, hard-copy) terminal
| which is temporarily in paging mode: Return the
| terminal to autopaging mode and output all remaining
| pages.
| Q - (query) display the identifications of all logical
| messages destined for this terminal. If the message
| is security protected (that is, if it was routed to a
| specific operator identification or operator class), its
| identification is displayed only if the operator
| identification or class for the operator signed on
| matches that in the message. The identification
| consists of a six-character hexadecimal
| message number, a two-character temporary
| storage prefix, and optionally, a message title.

|
| hhhhhh
| is the one-to-six-character hexadecimal identifier of a
| specific, undelivered logical message to be retrieved. If an
| identifier is not specified, the oldest message is retrieved.

| *ldc
| is the logical device mnemonic for the logical device to which
| the message must be sent. (See "Page retrieval for IBM 3600,
| 3770, 3790 and LUTYPE4 terminals", below).

| *ALL
| a special case of *ldc.

Examples:

1. P/7 means "retrieve page 7 of this message"
2. P/N means "retrieve the next page (following the one being displayed) of this message"
3. P/(N)9 means "retrieve page 9 of the next message (of several which have been chained)"
4. P/, means "retrieve the oldest undelivered message"

In the examples above, "P/" has been used as the page retrieval transaction identifier.

Single keystroke retrieval (SKR) for 3270 display devices: A facility known as single keystroke retrieval (SKR) enables operators of 3270 display devices (under either BTAM or VTAM) to use the PA or PF keys to enter page retrieval commands. The facility depends upon the installation system programmer having specified selected page retrieval commands as being represented by specific PA or PF keys. This facility can greatly reduce the number of keystrokes necessary in a page retrieval session.

Details of how the system programmer specifies the required commands are given in the CICS/VS System Programmer's Reference Manual.

Page retrieval for IBM 3600, 3770, 3790, and LUTYPE4 terminals: A CICS/VS application program can use BMS to send messages to a communication system such as the IBM 3600. The program can send different messages to each of the logical devices within the system, and these messages may be grouped as a single logical message, held on storage.

Each component of a logical message is accompanied by a logical device code (ldc) to identify its destination. When retrieving the message pages for a particular logical device, the ldc for that device must be specified. This is unnecessary if the user-written program in the logical unit controller has been designed to route messages automatically.

The page retrieval command is extended by the operand *ldc when BMS is used with a communication system. (See request format and notes, above). BMS observes the following rules when selecting pages and an ldc for delivery within a logical message:

1. If the page number and *ldc are specified, delivery begins with the specified page for that logical device. If the logical device is in AUTOPAGE status, all pages for that logical device, starting with the requested page, are written. If the logical device is in PAGE status, only the specified page is written.
2. If *ldc is not specified, and the application program in the logical unit does not provide a default, BMS will select the first page destined for a logical device which is currently in PAGE status. It is recommended that the application program provides a default LDC because pages may be delivered to logical devices other than those originally specified.

In either case, if this is the first request for a page from a logical message, all pages (within the logical message) destined for logical devices currently in AUTOPAGE status will be delivered after the first or specified page is delivered to a paged device.

| The getpageA command supports an *ldc specification for non-routed
| messages created for a 3601 logical unit. The various forms of getpageA
| are interpreted as follows:

- | • getpageA*ALL resets to autopaging and delivers all pages for the
| logical devices which have autopage specified in the terminal
| control table (TCT), but which were temporarily placed in page
| status by the CICS/VS application programmer.
- | • getpageA*ldc resets the specified logical device to autopage and
| delivers the pages for that *ldc. The command is similar to
| getpageA*ALL except that it operates only for the specified logical
| device.
- | • getpageA resets to autopaging and delivers the remaining pages for
| the logical device for which pages are currently being displayed.

| Page Retrieval Session

| A page retrieval session begins when the operator of a paging terminal
| enters the first page retrieval command, or when the first page is
| presented by ATI. It continues until a message terminate (or purge)
| command is issued. Purge commands are described later.

| During a page retrieval session, CICS/VS passes commands directly to
| BMS terminal paging, without following the normal transaction
| identification procedure.

| If SKR is used during the page retrieval session, PA and PF keys are
| interpreted as page retrieval commands. The PA and PF keys can once
| more be used for initiating transactions when the session has ended.

| For more information on multiple uses of PF keys see the CICS/VS
| System Programmers Reference Manual.

| MESSAGE CHAINING

| Usually, when the operator has finished viewing the output pages from a
| transaction, there is no need to retain the pages. However, sometimes
| it is desirable to initiate a new transaction and still retain the old
| pages, to be viewed again after output from the new transaction has been
| displayed.

| Request format:

| messchnyyyy [parameters]

| messchn
| is the installation-defined message-chaining transaction
| identification code (for example, "C/").

| yyyy
| is the identifier of a transaction which will produce data to
| be added to the message chain.

| parameters
| are any parameters required by transaction yyyy.

| Notes:

- | 1. If the new transaction uses terminal control, or BMS in TERMINAL mode, its output will be displayed immediately. When the transaction terminates, any further operator input will be interpreted as a paging command for the first message.

| Example:

| TRAN Transaction invokes application program which produces multiple pages of output. The first page is displayed.

| P/2 Second page of message displayed.

| C/cemt inq tim CEMT data displayed.

| P/2 Second page of message redisplayed.

- | 2. If the new transaction uses BMS in PAGING mode, and RETAIN or RELEASE was specified in the application program's SEND PAGE command, the output will be chained to existing output.

- | a. If RELEASE was specified, this chaining process can be repeated indefinitely.

| However, chaining requests must always be made while viewing pages at the highest level of chaining. Otherwise, messages in levels higher than the current level will automatically be purged (if EODPURG=AUTO has been specified in the application program request), or the operator will be asked to purge them.

- | b. If RETAIN was specified, no further chaining (in either TERMINAL or PAGING mode) can be performed until the second logical message has been terminated. Further chaining requests will be rejected.

- | c. If neither RETAIN nor RELEASE was specified, the output from the second transaction will be queued as a message for the terminal, and will not be received until all earlier messages have been terminated.

- | d. If a non-page-handling command is entered during a message chaining session, all message pages on levels higher than the current level are deleted, provided that no message in the chain has EODPURG=AUTO.

| An example of the use of message chaining under BMS in PAGING mode is an operator searching a personnel file for people who speak French. The initial inquiry might turn up three names. Without terminating the page containing the names, the operator might then wish to examine the records of each of the three people named. The chaining transaction could be used to read a record, without erasing the three names.

| This would create output at the second level of chaining (the output from the original transaction being first-level output). When the operator had finished viewing an individual's record, a paging command would be entered to terminate the current level (see "Message

| Termination" later in this section). The message displaying the
| person's record would be purged, and the original page, containing the
| three names, redisplayed. Assuming that the message chaining
| transaction identifier is "C/", the procedure could be as follows:

To locate those in department J34 who speak French, the operator enters:

LANG DEPT=J34,FRENCH

CICS/VS response: ADAMS, J.A. 1043
LEVY, A.R. 7121
WALTON, J. 8143

To find out more about Adams, the operator enters:

C/PREC 1043 (Find the personnel record for the employee
with serial number 1043. PREC is used here
as the identifier of a user-written transaction
for examining personnel records.)

Response: NAME - ADAMS, JERRY A. SERIAL - 1043 etc.

To go back to the list of names, the operator enters:

| T/C ("T/" is the user-defined transaction identifier
which terminates the message at the current level
of chaining. See "Message Termination" later in
this chapter.)

CICS/VS response: ADAMS, J.A. 1043
LEVY, A.R. 7121
WALTON, J. 8143

The operator can now examine Levy's record.

It is also possible to chain a series of messages together and use
paging commands to view the series simultaneously. Using the previous
example, the operator can have the summary page as his base message
(level one) and each of the personnel records as subsequent chain
levels. Assume the operator is currently displaying the summary:

Operator enters: C/PREC 1043
CICS/VS response: NAME - ADAMS...

Operator enters: C/PREC 7121
CICS/VS response: NAME - LEVY...

Operator enters: C/PREC 8143
CICS/VS response: NAME - WALTON...

There are now four levels of logical messages at the terminal. The
operator is now free to page back and forth between the personnel
records at his terminal.

Operator enters: P/(2) 1
CICS/VS response: NAME - ADAMS...

Operator enters: P/(L) 1
CICS/VS response: NAME - WALTON...

Note: A new transaction can be chained only while the last logical level is being viewed. If you have four levels (as in the above example), view the summary page (level one) and then enter C/PREC 3642; the new transaction will become level two and all other chained messages below that will be erased (assuming that they have EODPURG=AUTO).

MESSAGE TERMINATION

A logical message can be erased by using the message terminate command. If the logical message is security protected, it will be terminated only if the operator identification or class, of the operator signed on, matches that in the message.

Request format:

msgterm {a}[,hhhhhh]

msgterm

a one- to seven-character, user-defined transaction identifier for the message termination transaction (for example "T/").

a

can be A, B, C, H, or R, as follows:

A

Terminate all logical messages destined for and being displayed on that terminal (includes routed messages not yet displayed). Message DPH4122 is received when termination has been completed.

REQUESTED PURGE COMPLETE

B

Terminate the logical message being displayed on that terminal and all logical messages chained to it (does not include routed messages). (See Note.)

C

Terminate the current (level) logical message and any messages chained below it.

H

Terminate all logical messages chained to the base logical message being displayed on that terminal. The page of the base message which was most recently displayed will be redisplayed at the terminal.

R

Terminate all logical messages queued for immediate delivery (routed) to the terminal. The page which was being displayed at the terminal will be redisplayed.

hhhhh

is the one- to six-character hexadecimal identifier of a specific, undelivered logical message to be erased. If the message specified is security-protected, the operator should have a security code which matches that in the message.

If a message identifier (hhhhh) is not specified in the termination request, the oldest message is automatically retrieved.

After an erase, the last message still in the chain is displayed.

Note: Whenever an operator at a terminal has finished with all the output from a transaction, the base message should be terminated by entering the command of the form msgtermB.

COPYING PAGES

The copy command allows the operator at a terminal to transfer the page being displayed, as it appeared when initially transmitted, to another terminal (normally hard-copy).

This function is invoked by the terminal operator by entering the page-copy transaction identification code and the identification of the terminal to receive the copy.

Request format:

msgcopytttt

msgcopy

the one- to seven-character copy transaction identifier (for example "D/").

tttt

the identifier of the terminal to which the page is to be copied.

A confirmation message is sent to the originating terminal (DFH4124 xxxxxx COPIED FROM TERMINAL tttt). The current page is available for redisplay if the originating terminal is a video device.

CHANGING THE STATUS OF A HARD-COPY TERMINAL

A hard-copy terminal which is not defined as a paging terminal (one which displays pages at operator request) is an autopaging terminal (one which displays all pages without operator intervention). An autopaging terminal may be temporarily designated as a paging terminal by the user's application program. For further details see Basic Mapping Support (BMS) in the CICS/VS Application Programmer's Reference Manual. At the time the first page is to be displayed on the terminal, the terminal is temporarily treated as a paging terminal for the duration of the message. This condition exists until one of the following occurs:

1. The operator enters P/A (reset terminal to autopaging status), indicating that all subsequent pages are to be displayed without further intervention.
2. The operator enters T/C (terminate current message). All pages from that logical message are purged, and the terminal is again put into autopaging status.

Where "P/" is the paging transaction identifier, and "T/" is the terminate transaction identifier.

HOW ROUTED PAGES ARE DISPLAYED AT THE TERMINAL

A transaction, known as a message switching transaction, can be used to direct output to a terminal or terminals other than the one at which the transaction is initiated. (For more information on message switching see Chapter 7.) Thus, when a terminal to which a message is directed is in TRANSCIVE status and is not involved with a transaction, and not displaying any pages, CICS/VS automatically displays the first page of the routed message.

However, if a terminal is in TRANSACTION status, CICS/VS cannot automatically display the first page of a message. If the operator wants to receive a message which is queued for delivery to his terminal, any of the following may be entered:

```
CSPG
CSPG P/1
P/1
```

Note: In the preceding examples 'P/' is used as the paging command. CSPG is a CICS/VS-provided transaction identification code for the terminal paging program, DFHTPR.

The first page, if any, is displayed. If there is no routed output, CICS/VS will so inform the operator, using message DFH4104:

NO PAGES WAITING TO BE DISPLAYED

Batched Transaction Entry

One or more transactions and any associated data may be submitted from some types of terminal in batch mode by using the asynchronous transaction processor (ATP).

The ATP can be used with the following types of terminal.

```
2770
2780 - Batch terminals
3780

2740/1 - Interactive terminals

System/3
System/7
System/370
```

INITIATING OR TERMINATING ATP SESSIONS (CATP TRANSACTION)

The terminal operator uses the CATP transaction to initiate or terminate an ATP session. During the session he uses transaction CRDR to submit batches of transactions, and transaction CWTR to obtain the output from these batches.

Note: To use CRDR and CWTR services, terminals must be able to transmit the character "=".

Request format:

CATP {START|STOP}

START

activates ATP, or reactivates it after a CATP STOP command. The operator can be informed of the following conditions in response to a START request:

ATP not included in the system at system generation time.

ATP was already active when the START request was made.

Note: START can also be caused by submitting a new batch or releasing a "held" one.

STOP

suspends ATP processing of batches as soon as all those currently being processed have been completed. CICS/VS issues a message to say that termination has been scheduled.

REQUESTING ATP SERVICES (CRDR TRANSACTION)

The services of the asynchronous transaction processor are requested using CRDR as the transaction identification code. Unlike transaction requests submitted in normal conversational mode, transactions within a batch are not processed until a delimiter statement is detected. When such a statement is encountered, the terminal is freed for other use, and the transactions within a batch are processed sequentially. The transactions within each batch are listed after the CRDR transaction, with any accompanying data. No output for the batch will be sent until the terminal operator requests it. Specific details of the CRDR transaction and parameters follow.

Request format:

CRDR [NAME=batchname]
 [,DELIM=delimiter-indicator]
 [,EXIT=program-identifier]
 [,PASSWD=password]

NAME

specifies the one- to eight-character symbolic name to be associated with this particular batch. This name is used to identify the batch for subsequent output (see the CWTR statement later in this chapter). If omitted, the batch is automatically named by CICS/VS, and the name is passed back to the terminal operator within the DFH1950 terminal message.

DELIM

specifies the one-to-four-character symbolic delimiter for the batch. CICS/VS continues reading from the terminal until it encounters contiguous occurrences of this delimiter. If no delimiter is specified, the default is "/*", and a single occurrence of this default delimiter terminates reading the batch. If the delimiter is specified correctly, but some other parameter is incorrect, CICS/VS will prompt the user to enter STOP, as indicated in message DFH1947. Alternatively, CICS/VS will accept two occurrences of the specified delimiter instead of STOP.

EXIT

specifies the one- or two-character identifier of a user-provided exit program which is to be used to edit the input data before it is queued (stored).

PASSWD

specifies the one- to eight-character password that prevents unauthorized access or knowledge of the associated batch. If a password is specified on the CRDR statement, the same password must be used on the CWTR statement when requesting output services.

Note: All parameters must be submitted in the same message with the CRDR characters. Parameters are keywords and may be entered in any order.

Example:

```
CRDR NAME=BATCH1,DELIM=$$$$ (Explicitly defined end of batch
                             delimiters)
TRNA (transaction code)
  data
  data
$$$$ (end of transaction delimiter)
TRNB (transaction code)
  data
TRNC (transaction code)
TRNA (transaction code)
  data
$$$$ end of batch delimiter
$$$$
CRDR NAME=BATCH2,EXIT=A3 (end of batch delimiter not specified)
TRND data,data
TRND data,data
TRND data      transaction codes and data
TRNA
  data
  data
/* (end of batch default delimiter)
```

Note: If a transaction in a batch abnormally terminates, subsequent data is skipped. A single occurrence of an explicitly defined delimiter stops the skipping and permits normal processing to resume.

REQUESTING ATP OUTPUT (CWTR TRANSACTION)

Output from batches can be requested by submitting a request for the services with a CWTR command statement.

Request format:

```
CWTR      [NAME=(batchname,batchname) ]
          [,TERMINID=(terminal-ID,terminal-ID) ]
          [,SOURCE=terminal-ID ]
          [,COPIES={1|n} ]
          [,EXIT=program-identifier]
          [,PASSWD=password ]
          [,SAVE ]
          [,DELETE ]
          [,RELEASE ]
          [,STATUS ]
```

Note: In order to use CWTR services, terminals must be able to transmit the character "=".

NAME

specifies one or more names of batches to be transmitted to the specified destination. If omitted, all batches submitted by the terminal (which are ready) are transmitted. If only one batch name is entered, parentheses are not required.

TERMINID

specifies the identification of the terminal to which output of specified batches is to be sent. If omitted, the output of batches submitted by this terminal is sent to this entering (originating) terminal. If only one terminal identifier is entered, parentheses are not required.

SOURCE

if a batch that originated at another terminal is requested, the identification of that terminal must be specified in this field. If SOURCE=ALL is specified, all batches represented in the system are eligible for action. For example: CWTR STATUS,SOURCE=ALL,PASSWD=ALPHA obtains the status of all batches not password protected as well as those that are protected by the password ALPHA.

COPIES

specifies the number of copies (up to 255) to be generated. The default is COPIES=1.

EXIT

specifies the one- or two-character identifier of an optional user-provided exit routine which is to be used to edit output data before transmission to the terminal.

PASSWD

specifies that, if any of the batches requested are password protected, the password must be entered in this field.

SAVE

specifies that the batch or batches named are not to be deleted until an explicit request to do so is made.

DELETE

specifies that the batch or batches named are to be deleted from the system.

RELEASE

specifies that the batch or batches named are to be released from HOLD status.

STATUS

specifies that the status of all batches for this terminal (or those named) is to be transmitted to the terminal.

Note: All parameters must be submitted in the same message with the CWTR characters.

Automatic Output

It is possible to automatically receive output upon completion of a batch by submitting a CWTR statement along with the input. For example:

```
CRDR
TRNA data
TRNB
  data
TRNC
  data
CWTR
/*
```

Delaying or Deleting Batch Processing

Two additional services are provided with the final (or only) delimiter statement: HOLD and DELETE.

Processing the input of the batch is usually initiated as soon as the input of the batch is complete. If this processing is to be delayed, the input can be completed but held, by following the batch delimiter with a space and the word HOLD. For example:


```

CRDR
TRNA data
...
/* HOLD

```

Note: To request the output previously held, the operator submits a CWTR request, with the RELEASE parameter.

If, during submission of a batch, the operator realizes the batch should not be processed, the delimiter(s) can be entered. The last (or only) delimiter should be followed by a space and the word DELETE.

If no delimiter has been specified in the CRDR message, the HOLD or DELETE command starts one space after the default delimiter, /*. If a delimiter has been specified, the HOLD or DELETE command starts one space after the second user-specified delimiter. For example:

```

CRDR DELIM=ABCD
TRNA data
...
ABCD
ABCD DELETE

```

| The Routing Transaction (CRTE)

| The Routing Transaction (CRTE) provides a simple method of running a transaction that resides on a remote system.

| Transaction routing in an MRO environment is usually achieved by making entries in the PCT. The entries define the transaction as remote, and name the system on which it is to be executed. Simply entering the transaction code then causes CICS/VS to route the requests to the named system. Sometimes, however, it is desirable to be able to execute transactions on another system without making special PCT entries. The Routing Transaction (CRTE) makes this possible.

Request format:

```
CRTE SYSID {=system-id| (system-id)}
```

| system-id

| The name of the system which is to execute the user transaction. This system-id is the same as the 4-character SYSIDNT specified for a DFHTCT TYPE=SYSTEM definition of the remote system.

| The routing transaction verifies that the specified remote system is known and is available. If it is, a message is displayed confirming that a routing session to the required system has been started. The user can then clear the screen and enter the transaction code for the transaction that is to be executed on that system. In fact the operator uses the terminal as if it were connected directly to the remote system, and might be asked to sign-on in that system before being allowed to run any transactions. The transactions invoked can include pseudo-conversational transactions, BMS paging transactions, and even CRTE

| itself. However, transactions CSOT and CEOT cannot be used in
| conjunction with CRTE.

| The routing transaction can be invoked from a 3270 video terminal or
| the VSE console (but not from the OS/VS console).

| To end a routing session the operator enters CANCEL. This will
| automatically cause sign-off from the connected system (assuming the
| operator was signed on in that system).

| When a routing session is terminated, the operator is informed by the
| message 'ROUTING SESSION TO system-id TERMINATED'. If the routing
| session involves daisy-chaining (transaction routing through multiple
| systems), this message only means that the session furthest from the
| terminal has been terminated. To completely terminate a daisy-chained
| routing session, CANCEL must be entered the same number of times as CRTE
| was entered.

| It is preferable to use the routing transaction, rather than making
| special PCT entries, when performing little-used transactions, or
| transactions such as CSMT or CEMT that reside on all systems. Also, it
| is necessary, when EDF is used to test a transaction running on a remote
| system. However, it is less convenient for the operator, because the
| session has to be established and canceled explicitly, and additional
| sign-on operations may be required.

| While a terminal is in a routing session with another system (that
| is, during the period between entering CRTE and CANCEL) the terminal
| cannot receive messages delivered by automatic transaction initiation
| (ATI). Therefore, if a transaction that builds a message using BMS
| paging and delivers it by a BMS SEND PAGE command (without specifying
| either of the options RETAIN or RELEASE) is run on a remote system using
| the routing transaction, then the message cannot be delivered
| immediately. It will be delivered when the routing session ends
| (provided the terminal was in TRANSCIEVE status when the routing session
| commenced). Alternatively, the operator may retrieve the message (while
| still routed) using the BMS page commands.

| There are some restrictions on the use of CRTE in conjunction with
| BMS chaining of messages:

- | 1. It is not possible to use CRTE as a chained transaction without
| losing the logical message from which CRTE was to be chained.
- | 2. It is not possible to use chaining within a routing session without
| purging the logical message currently attached to the terminal.

| **The Message Switching Transaction (CMSG)**

| This section is a brief reference summary of chapter 7, which should be
| referred to for explanation of keywords and operands, and for a full
| description of the message switching facilities.

Request format:

```
CMSG [MSG=]'message'
      [,ROUTE={ [termid] [/opid] } [,...]|ALL|
          .termlist[,...][,+[termid] [/opid] [,...]]
      [,OPCLASS=n1[,...]]
      [,TIME= Value1]
      [,DATE= Value2]
      [,ERRTERM= {termid|ORIG} ]
      [,OPCLASS= n1[,...]]
      [,ID= title]
      [,HEADING= {YES|NO}
      [,PROTECT= {YES|NO|prefix} ]
      [,SEND|CANCEL]
```

The CICS/VS message switching facility allows messages to be transmitted from a terminal to one or more destinations. For example, an operator can send a message to:

- Another terminal
- Another terminal only when a specified operator is signed on at that terminal
- Another terminal only when the operator signed on at that terminal is in a specified operator class
- Another operator (CICS/VS will locate the operator, if currently signed on, and send the message to that operator's terminal)
- All terminals
- All terminals with operators signed on in specified classes

Notes:

1. The operator can specify a time at which the message is to be transmitted. If the message cannot be transmitted, the sending terminal, or another, can be notified.
2. Messages can be sent to multiple destinations (combinations of the above), and to terminals on standard routing lists, provided by the terminal list table (TLT), which can include terminal and/or operator identifications. Multiple routing lists may be specified at the time the message is entered, and individual destination identifiers may be deleted from, or added to, the lists at this time.

Statistics

CICS/VS system statistics are available to any terminal operator whose security code allows him to request them. Such information would normally only be required by a system programmer. Consequently, no further information is given in this chapter. Operators who need to use the CSTT transaction to obtain system statistics should see Chapter 8 for further information.

| Terminal Test Function, Trace Control, and Storage Freeze (CSFE)

| The CSFE transaction helps the user to diagnose hardware problems. It
| also controls storage freeze, and turns traces on and off. An ordinary
| terminal operator is not expected to use CSFE, and no further
| information is given in this chapter. Operators who do need to use it
| should see Chapter 9 for further details.

| Facility Error Recognition System (FERS)

| FERS is a service aid which allows the user to retrieve and examine
| communications error data. An ordinary terminal operator is not
| expected to use FERS, and no further information is given in this
| chapter. Operators who do need to use the CSFR transaction should see
| Chapter 9 for further details.

Chapter 4. The Enhanced Master Terminal Transaction (CEMT)

Transaction CEMT is intended to replace the existing master terminal transaction (CSMT). It supports all functions currently supported by CSMT, but its command syntax is simpler, more concise, and more flexible. In addition, it provides better diagnostics, has better abbreviations, and supports the new CICS/VS facilities introduced in CICS/VS Version 1 Release 5.

The CEMT transaction can be initiated from 3270 (and 3270-like) terminals and the system console.

The transaction is initiated by entering the identifier CEMT and pressing ENTER. The identifier can be entered alone, or can be followed by operands, separated by commas or blanks, to form a complete request. The transaction continues until the operator terminates it by pressing program function key 3 (PF3).

The enhanced supervisory terminal transaction and the enhanced ordinary terminal status transaction (CEST and CEOT respectively) are subsets of the enhanced master terminal transaction. Their request formats are shown at the end of this chapter. Communication with CEST and CEOT follows the same rules as communication with CEMT.

Communicating with CEMT

| The master terminal operator can communicate with CEMT by:

1. CEMT requests on the command line.
2. Modifying a CEMT display.
3. Program function (PF) keys.
4. A LINK command in an application program.

CEMT REQUEST ON THE COMMAND LINE

A CEMT request can be constructed interactively, or entered as a complete request. The CEMT transaction invokes the command-level interpreter, which checks the syntax of requests and diagnoses errors. If a request is syntactically correct, it is executed immediately. If the request cannot be executed because of severe syntax errors, a panel is displayed to show the full syntax of the request.

If the operator precedes a request by a question mark (?), CEMT displays the syntax of the request, but does not execute it.

If no request is defined (command is CEMT only), a list of possible requests is displayed.

| Later in this chapter, syntax panels similar to those displayed by CEMT show the formats of all master terminal requests. A request which initiates the CEMT transaction must begin with the transaction

| identifier CEMT, but the identifier is implied at the beginning of any
| further request, and should not be entered again. This is not true for
an operator using a system console; he must always start a master
terminal request with the CEMT transaction identifier.

Note: For further details of the use of the VSE or OS/VS console as a
CICS/VS terminal, see Chapters 10 and 11.

The syntax panels show the full form of each keyword used in a
request. CEMT accepts as few characters of a keyword as will uniquely
identify it within the request. Thus, the keyword TASK can be entered
as TA, TAS, or TASK, but the abbreviation T is not permitted, because it
can be confused with TIME, TERMINAL, TRANSACTION, and TRACE. TRACE can
be abbreviated only to TRAC, because anything shorter can be confused
with TRANSACTION. In its syntax panel display, CEMT indicates minimum
permitted abbreviations by displaying the mandatory portions of keywords
in uppercase characters, the remainder in lowercase.

The symbols used in the request formats are defined in Chapter 1.

There are three kinds of request; INQUIRE, SET, and PERFORM. If the
first keyword is none of these nor an abbreviation of one of them, the
request is assumed to be INQUIRE.

Most requests either inquire about (INQUIRE), or change (SET) the
status of a resource (such as a terminal), a group of resources (such as
a class of terminals), or a list of resources. An INQUIRE request
displays the status of specified resources. A SET request performs the
changes specified, and then displays the status of the resources.

Unless otherwise stated, any command can specify a list of resource
identifiers rather than a single one. The items in the list should be
separated by commas or blanks. For example:

INQ PROG (PROGRAM1,PROGRAM2)

Many of the request formats contain an option "ALL". For INQUIRE
requests this is a default option which is assumed if no alternative is
specified. For example, if an operator inquires about terminals, he
will receive information about all terminals, unless he specifies a
terminal identifier, a terminal class identifier, or a system
identifier.

The characters * and + can be used as part of an identifier name to
specify a family of resources rather than a single one. "*" represents
any number of characters (including none), and "+" represents a single
character. Note, however, that this convention cannot be used when the
identifier is one of a list.

Examples:

1. "A*" specifies all identifiers beginning "A".
2. "*DATA*" specifies all identifiers containing the word "DATA".
3. "TERM00+" specifies all seven-character identifiers beginning
"TERM00".

In an INQUIRE request, a resource group can be sub-defined by
specifying one or more attributes of the group. Thus,

INQUIRE TERMINAL ALL INSERVICE

causes display of the status of all terminals which are IN

| SERVICE. This method of sub-defining groups does not apply to SET requests, because SET TERMINAL ALL IN SERVICE PAGE (for example) puts all terminals IN SERVICE and into PAGE status, whereas the operator might have intended to put all IN SERVICE terminals (but no other) into PAGE status. However, such groups of resources can be managed by performing an INQUIRE request, and modifying the display produced (see next section).

| COMMUNICATING WITH CICS/VS BY MODIFYING A CEMT DISPLAY

| A CICS/VS display received in reply to a master terminal inquiry usually consists of one line of status information for each resource in the specified group. The status information is displayed as a list of abbreviated keywords.

| Each line contains unprotected fields. The operator can position the display cursor to any such field, and change its contents. When he presses the ENTER key again, CICS/VS reads the contents of all fields which have been changed, and performs any valid operations implied by the changes. An invalid change causes an error message, and the contents of the field remain unchanged.

| The fields which can be changed are different in each display. They can be detected, however, by pressing the tabulator key repeatedly. This causes the cursor to jump from one unprotected field to the next. The changes which may be made can be seen by positioning the display cursor to the start of one of the lines of status information, and typing a question mark (?). This produces a display consisting of that line of data, and the syntax panel of the appropriate SET request.

| Some displays contain blank fields which allow the operator to specify options, such as NEWCOPY and PURGE, which are not part of the status of a resource. A status, such as NOREAD which begins "NO", is also represented by a blank field. These fields can be detected using the tabulator key.

| PROGRAM FUNCTION KEYS

| When CEMT is executing, the lower part of the display contains a list of PF keys. If a terminal does not have such keys, the operator can simulate key-pressing by placing the display cursor under a key name in the list, and pressing the ENTER key.

| CEMT responds to seven function keys. The keys and their functions are as follows:

| PF1
| Help. Produces a list of PF keys and their functions.

| PF3
| End session. The operator terminates the CEMT transaction.
| Other CICS/VS transaction codes can then be entered.

| PF7
| Scroll back half.

| PF8
| Scroll forward half.

| PF9
 | Expand messages. If several syntax messages have been
 | generated in response to a request, the operator can display
 | all of them by pressing PF key 9.

| PF10
 | Scroll back.

| PF11
 | Scroll forward.

| SCROLLING

| A plus (+) sign on the first or last line of a results display indicates
 | that there is more data above or below the current display. Scrolling
 | back reveals data above, and scrolling forward reveals data below. A
 | whole screen (PF10 or PF11) or half a screen (PF7 or PF8) can be
 | scrolled.

| INVOKING MASTER TERMINAL FUNCTIONS FROM APPLICATION PROGRAMS

| The functions provided by the enhanced master terminal transaction can
 | also be invoked from application programs.

| For example the master terminal command:

| CEMT SET TERMINAL (ABCD) OUTSERVICE

| can be performed by an application program in the following way:

```
| .  
| .  
| .  
| COMMAND DS CL80  
| .  
| .  
| MVC COMMAND,=CL80'SET TERMINAL (ABCD) OUTSERVICE'  
| EXEC CICS LINK PROGRAM ('DPHEMTP') COMMAREA (COMMAND)  
| .  
| .  
| .
```

| It should be noted that if CEMT is invoked by a LINK to DPHEMTP with
 | COMMAREA:

- | • CEMT will not diagnose syntactically incorrect commands
- | • CEMT will not return any execution time response
- | • CEMT will not return any output from the command
- | • CEMT does not interact with a terminal, so can run as a non-terminal task
- | • keywords should not be abbreviated, because abbreviations might change between releases.
- | • the maximum COMMAREA size that will be processed is 130 characters.

Using CEMT as a Prompter

Request format:

CEMT

CEMT responds to this request by prompting for the first request keyword. This can be:

INQUIRE
SET
PERFORM

INQUIRE REQUEST

If the operator replies "INQUIRE" to the initial prompt, CICS/VS displays the general option list, as follows:

TASK
TCLASS
TRANSACTION
PROGRAM
DATASET
QUEUE
TERMINAL
NETNAME
LINE
CONTROL
SYSTEM
DUMP
TRACE
AUXTRACE
PITRACE
VTAM
BATCH
IRC
IRBATCH

The operator can elect to inquire about one of these options, by typing the keyword after "INQUIRE" on the command line. Alternatively, he can press ENTER to inquire, by default, about the system parameters in the following default inquiry option list.

MAXTASKS
AMAXTASKS
BMAXTASKS
ATP
AKP
CUSHION
IOCP
TIME
RUNAWAY
STALL
SWT

SET REQUEST

An operator uses the SET keyword to set, or change, the value of a system parameter. If he enters "SET", without accompanying operands, the INQUIRE general option list is displayed, but the options IRCBATCH and BATCH are omitted.

To set parameter values, the operator should enter:

```
SET param(value)[,...]
```

Where "param" is one of the parameter keywords listed in either of the inquiry option lists, and "value" is the new parameter setting.

Example:

```
SET MAXTASKS(10),TIME(1500)
```

A SET request which does not specify changes is treated as an INQUIRE request.

In many cases it is preferable to avoid using the SET request, by performing an INQUIRE and changing the display received.

PERFORM REQUEST

CEMT performs functions which are not concerned with resource status. These functions are initiated using the PERFORM request.

| Master Terminal (CEMT) Request Formats

| TASKS AND SUNDRY SYSTEM PARAMETERS

| Inquiring About Values

Request format:

```
CEMT INQUIRE  
[MAXTASKS]  
[AMAXTASKS]  
[BMAXTASKS]  
[ATP]  
[AKP]  
[CUSHION]  
[IOCP]  
[TIME]  
[RUNAWAY]  
[STALL]  
[SWT]
```

| The request "CEMT INQUIRE", with any number (including none) of the
| above operands specified, will cause CICS/VS to list the current values
| of all parameters.

Setting Values

Request format:

```
CEMT SET
      [ MAXTASKS (value) ]
      [ AMAXTASKS (value) ]
      [ BMAXTASKS (value) ]
      [ ATP (value) ]
      [ AKP (value) ]
      [ CUSHION (value) ]
      [ IOCP (value) ]
      [ TIME (value) ]
      [ RUNAWAY (value) ]
      [ STALL (value) ]
      [ SWT (value) ]
```

These are the values which can be set:

MAXTASKS

is the maximum number of concurrent tasks in the CICS/VS system, including active and suspended tasks. The range is from 2 to 999.

AMAXTASKS

is the maximum number of concurrent active tasks. The range is from 1 to 999.

BMAXTASKS

is the limit used to determine if a new ATP batch task may be initiated. The range is from 1 to 999.

ATP

is the maximum number of ATP batches that can be in process at any one time. This number does not include those being operated upon by CRDR or CWTR. The range is from 1 to 999.

AKP

is the activity keypoint frequency (trigger value). It can have a value in the range 20 to 524288.

The master terminal operator cannot change this value if any of the following are true:

1. AKPFREQ=0 was specified in DFHSIT during system initialization.
2. AKPFREQ=0 was specified at startup.
3. KPP=NO was specified at startup.

CUSHION

is the size of the storage cushion. Cushion size does not actually change until the existing cushion is released. When cushion is regained, the cushion will be the size indicated by the new value. The range of values is 20 to 524,288 bytes.

| IOCP (OS/VS only)
 | is a variable that determines how many CICS/VS WAITs may occur
 | before an OS/VS WAIT is issued. It is defined as the
 | Input/Output Wait Count Percentage and may vary from 0 to 50.

| TIME
 | is the maximum time interval (in milliseconds) for which
 | CICS/VS will release control to the operating system in the
 | event that no transactions are ready to resume processing.
 | This is known as the partition/region exit time interval. A
 | typical time interval is 1,000 milliseconds, but the value can
 | be any number between 100 and 327670 milliseconds.

| RUNAWAY
 | is the time for which a task can have control before it is
 | assumed to be in a runaway (logical loop) condition. After
 | this time a task is abnormally terminated. The runaway time
 | interval must not be less than the partition/region exit time
 | interval, and cannot be greater than 2,700,000 milliseconds.

| STALL
 | is the value of the stall time interval. If no active CICS/VS
 | tasks have been able to proceed during a period equal to the
 | stall time interval, the system is considered to have stalled.
 | Purgable tasks will be purged to reduce the load on the system.
 | Typical stall time interval might be 20,000 milliseconds, but
 | the value can be any number between 100 and 327670
 | milliseconds.

| SWT (VSE only)
 | is the time for which VSE can have control while CICS/VS
 | execution is suspended because of low work load. The value can
 | be in the range 0 to 1000 milliseconds.

| TASKS

| {INQUIRE|SET} TASK[(number)]
 | [TCLASS (clasid) | ALL]
 | [TRANID (tranid)] (INQ ONLY)
 | [FACILITY (faid)] (INQ ONLY)
 | [ACTIVE | SUSPENDED] (INQ ONLY)
 | [SHORT | LONG] (INQ ONLY)
 | [TASK | TERM | DEST] (INQ ONLY)
 | [PURGE] (SET ONLY)

| TASK
 | number is the CICS/VS-generated task identification. Neither a
 | list nor the symbols * and + can be used.

| TCLASS
 | clasid identifies the task class to which the task belongs.

| TRANID
 | tranid is the transaction name of the task.

| FACILITY
 | faid is the name of the terminal or queue which initiated the
 | task.

ACTIVE|SUSPENDED
indicates whether the task is active.

SHORT|LONG
indicates the relative longevity of the task as specified in the transactions Program Control Table (PCT) entry.

TASK|TERM|DEST
indicates whether the task was initiated without a facility, from a terminal, or by means of a destination trigger level.

PURGE
causes the task to be terminated abnormally.

TASK CLASSES

```
{INQUIRE|SET} TCLASS[ (clasid) ]
                [ ALL ]
                [ MAXTASKS(value) ]
```

TCLASS
there are ten task classes, with class identifiers (clasids) 1-10. Neither a list nor the symbols * and + can be used.

MAXTASKS
the maximum permitted number of concurrent tasks of a particular user-defined class.

TRANSACTIONS

```
{INQUIRE|SET} TRANSACTION[ (trandid) ]
                [ CLASS (clasid)|ALL ]
                [ PRIORITY(value) ]
                [ ENABLED|DISABLED ]
```

TRANSACTION
trandid is a 4-character transaction name defined by the System Programmer in the Program Control Table (PCT).

CLASS
clasid is the 2-character suffix of a Transaction List Table (TLT).

PRIORITY
"value" is the priority of a transaction relative to other transactions. When a transaction is executing as a CICS/VS task, the task's priority is a combination of the transaction priority, the terminal priority and the operator priority. "value" must be in the range 0 through 255, where 255 represents the highest priority.

| **ENABLED|DISABLED**
 | indicates whether or not the transaction is available for use.
 | Transactions which have identifiers beginning with "C" cannot
 | be disabled because these are usually reserved for use by
 | CICS/VS.

| **PROGRAMS**

{INQUIRE SET} PROGRAM[(pgrmid)]	
[CLASS (clasid) ALL]	
[LENGTH (value)]	(INQ ONLY)
[RESCOUNT (value)]	(INQ ONLY)
[USECOUNT (value)]	(INQ ONLY)
[PLI COBOL ASSEMBLER RPG]	(INQ ONLY)
[ENABLED DISABLED]	
[NEWCOPY]	(SET ONLY)

| **PROGRAM**
 | pgrmid is an 8-character program name defined by the System
 | Programmer in the Processing Program Table (PPT).

| **CLASS**
 | clasid is the 2-character suffix of a Program List Table (PLT).

| **LENGTH**
 | value is the size of the program in bytes.

| **RESCOUNT**
 | value is the number of times the program is currently being
 | used.

| **USECOUNT**
 | value is the number of times the program has been used.

| **PLI|COBOL|ASSEMBLER|RPG**
 | indicates the language in which the program was written.

| **ENABLED|DISABLED**
 | indicates whether or not the program is available for use.
 | Programs beginning with "DPH" cannot be disabled because these
 | are reserved for use by CICS/VS.

| **NEWCOPY**
 | refreshes the disk address of the program in its PPT entry and
 | marks it as non-resident. Thus NEWCOPY can be used to obtain a
 | newly link-edited version of a program or to restore a program
 | which has been overwritten in core. The function will not be
 | performed if the program is currently being executed, but in
 | this case the program will be disabled so that NEWCOPY can be
 | done when the current executions finish.

DATASETS

```
{INQUIRE|SET} DATASET[ (fileid) ]  
    [ ALL ]  
    [ VSAM|ISAM|BDAM|DLI|REMOTE|ICIP ] (INQ ONLY)  
    [ OPEN|CLOSED ]  
    [ ENABLED|DISABLED ]  
    [ READ|NOREAD ]  
    [ UPDATE|NOUPDATE ]  
    [ ADD|NOADD ]  
    [ BROWSE|NOBROWSE ]  
    [ DELETE|NODELETE ]  
    [ EXCLUSIVE|NOEXCLUSIVE ]  
    [ DUMPDB|RECOVERDB ] (SET ONLY)
```

DATASET

fileid is an 8-character, or for VSE a 7-character, dataset name defined by the System Programmer in the File Control Table (FCT).

VSAM|ISAM|BDAM|DLI|REMOTE|ICIP

indicates the access method of the dataset.

OPEN|CLOSED

indicates whether the dataset is on-line to realtime processing.

ENABLED|DISABLED

indicates whether the dataset is available for use.

READ|NOREAD

indicates whether a user can read records on the dataset.

UPDATE|NOUPDATE, ADD|NOADD, BROWSE|NOBROWSE, DELETE|NODELETE

are similar to READ|NOREAD.

EXCLUSIVE|NOEXCLUSIVE

indicates whether records on the dataset are protected from simultaneous update.

DUMPDB (OS/VS only)

prohibits updates on DL/I data bases. This allows a backup utility to be run in another partition, following which the data base may be returned to on-line operation by setting it OPEN.

RECOVERDB (OS/VS only)

prohibits reads and updates on DL/I data bases. This allows a recovery utility to be run in another partition, following which the data base may be returned to on-line operation by setting it OPEN.

QUEUES

```
{INQUIRE|SET} QUEUE[ (destid) ]
[ ALL ]
[ TRIGGER (number) ]
[ INDIRECT|EXTRA|INTRA|REMOTE]      (INQ ONLY)
[ SUFFIX(suff) |OVPM(ovpm) ]      (SET ONLY)
[ ENABLED|DISABLED ]
[ OPEN|CLOSED ]
```

QUEUE

destid is a 4-character queue name defined in the Destination Control Table (DCT).

TRIGGER

number is the destination trigger level of an intrapartition queue. Such queues can be marked for automatic task initiation when this number of requests for output has been issued for the queue. The trigger level can be any value between 0 and 32767.

INDIRECT|EXTRA|INTRA|REMOTE

indicates the queue type. For indirect queues, the name of the final target queue will be shown on the display. EXTRA and INTRA mean extrapartition and intrapartition respectively.

SUFFIX|OVPM (OS/VS only)

see OPEN below.

ENABLED|DISABLED

indicates whether the queue is available for use. Queues beginning with "C" cannot be disabled because they are usually reserved for use by CICS/VS.

OPEN|CLOSED

indicates whether an extrapartition queue is open.

For OS/VS, when a queue is SET OPEN, the SUFFIX option can be specified to identify the DCB to be used, or the OVPM option can be used to supply parameters from which a DCB can be constructed. suff is a 2-character string which identifies a DCB. ovpm is a string whose structure and parameters are described in Appendix B.

TERMINALS

The INQUIRE NETNAME and SET NETNAME commands have been provided as alternatives to the TERMINAL commands. They will benefit users who are more familiar with network names than with terminal names.

Notes:

1. Netnames need not be unique, and cannot be specified as a list. Terminals can be specified as a list.
2. NETNAME and TERMINAL identifiers can contain + or * symbols to indicate a family of devices.

3. Only PURGE can be specified in a SET request for a terminal involved in an IRC session.

```
{INQUIRE|SET} TERMINAL[ (termid) ]  
[ CLASS(clasid)|SYSTEM(sysid)|ALL ]  
[ TRANID(tranid) ] (INQ ONLY)  
[ PRIORITY(value) ]  
[ NETNAME(netwid) ] (INQ ONLY)  
[ PAGE|AUTOPAGE ]  
[ INSERVICE|OUTSERVICE ]  
[ ATI|NOATI ]  
[ TTI|NOTTI ]  
[ PURGE ] (SET ONLY)  
[ ACQUIRED|RELEASED ]  
[ INTLOG|NOINTLOG ]
```

```
{INQUIRE|SET} NETNAME[ (netwid) ]  
[ SYSTEM(sysid)|ALL ]  
[ TRANID(tranid) ] (INQ ONLY)  
[ PRIORITY(value) ]  
[ TERMINAL(termid) ] (INQ ONLY)  
[ PAGE|AUTOPAGE ]  
[ INSERVICE|OUTSERVICE ]  
[ ATI|NOATI ]  
[ TTI|NOTTI ]  
[ PURGE ] (SET ONLY)  
[ ACQUIRED|COLDACQ|RELEASED ]  
[ INTLOG|NOINTLOG ]
```

TERMINAL

termid is a 4-character terminal name defined in the Terminal Control Table (TCT).

In an SNA environment a terminal is the CICS/VS representation of an SNA logical unit with which CICS/VS may be in communication (SNA environment means that CICS/VS is using ACF/VTAM or ACF/TCAM GSA as the access method for communication with SNA logical units). This logical unit may be:

- a physical terminal (such as a 3277)
- a function of a cluster controller (such as a 3790 Type2 batch function)
- an intersystem communication (ISC) or interregion communication (IRC) session which was generated by a DFHTCT TYPE=SYSTEM macro.

CLASS

clasid is the 2-character suffix of a Terminal List Table (TLT).

| **SYSTEM**
| sysid is a 4-character system name defined in a DFHTCT
| TYPE=SYSTEM macro.

|
| This limits the terminals referenced by the request to those
| ISC or IRC sessions connected to the specified system.

|
| Batch regions currently connected to the CICS/VS system through
| IRC can be addressed by the system name "0BCH". For example:

|
| CEMT SET SYSTEM 0BCH INSRV

|
| enables communication between CICS/VS and all batch regions.

|
| The only parameter that may be specified in the SET command for
| a terminal involved in IRC is PURGE.

|

| **TRANID**
| tranid is the name of the transaction currently executing with
| this terminal as its Principal Facility.

|

| **PRIORITY**
| value is the priority of a terminal relative to other
| terminals. The priority of a task is a combination of the
| transaction priority, the terminal priority and the operator
| priority. (Priority has no meaning for terminals that are ISC
| sessions being used as alternate facilities. See the CICS/VS
| System Application Design Guide.) The value must be in the
| range 0 through 255 where 255 represents the highest priority.

|

| **NETNAME (VTAM only)**
| netname is the name by which the terminal is known to the
| network (for example the ACF/VTAM network name). This may be
| the name of a logical unit or another application. If the name
| is that of another ACF/VTAM application, it is the name of the
| label in the ACF/VTAM VBUILD TYPE=APPL system definition.

|

| **PAGE|AUTOPAGE**
| indicates whether pages after the first in a series will be
| written to the terminal upon request by the operator or
| automatically.

|

| **INSERVICE|OUTSERVICE**
| indicates whether the terminal is available for use. For VTAM,
| INSERVICE means that the terminal can be ACQUIRED.

|
| Setting a terminal OUTSERVICE means that the terminal can no
| longer to be used by transactions. If PURGE is also specified,
| any transaction using the terminal will be terminated
| abnormally. If PURGE is not specified, the transaction will be
| allowed to terminate normally, but no further transactions will
| be allowed to use the terminal. For VTAM, setting a terminal
| OUTSERVICE will also cause it to be RELEASED, either
| immediately or when the current transaction has terminated.

|
| Note: A terminal with a termid of CNSL cannot be put out of
| service.

|

| **ATI|NOATI**
| indicates whether the terminal is available for use by
| transactions that are initiated automatically from within
| CICS/VS or, if the terminal is an ISC session, by transactions
| that are using this session as an alternate facility to
| communicate with another system.

TTI|NOTTI

indicates whether the terminal is available for use by transactions that are initiated from this terminal.

A terminal cannot have both NOATI and NOTTI in its status.

The keywords ATI and TTI replace the words TRANSACTION, TRANSCEIVE, RECEIVE and INPUT in CSMT, which are concerned partly with transaction processing status and partly with message processing status. The latter part is now eliminated and the former is replaced as follows:

ATI NOTTI is equivalent to RECEIVE
NOATI TTI is equivalent to TRANSACTION
ATI TTI is equivalent to TRANSCEIVE

PURGE

causes any transaction running with the terminal to be terminated abnormally. A RELEASE or OUTSERVICE request with PURGE will be done immediately.

ACQUIRED|RELEASED (VTAM only)

indicates whether or not CICS/VS is in session with the logical unit represented by the terminal. Setting a terminal RELEASED will cause the session to be terminated; immediately if PURGE is also specified; when any active transaction has finished if PURGE is not specified.

COLDACQ (VTAM only)

is an option for use with SET and is a special form of ACQUIRED, where no resynchronization is required. (Refer to the Recovery/Restart sections of the CICS/VS System Application Design Guide for further details.)

INTLOG|NOINTLOG (VTAM only)

indicates whether the terminal can be acquired automatically by ATI (see above) transactions. NOINTLOG puts session initiation from this CICS/VS system exclusively under the control of the Master Terminal Operator. Session initiation requests emanating from the logical unit or from the network operator have no effect.

LINE

```
{INQUIRE|SET} LINE(terminid)
                [NUMBER(number)]
                [NEGPOLL(value)]
                [INSERVICE|OUTSERVICE]
                [PURGE]                                (SET ONLY)
```

LINE

terminid is the name of any terminal on the line. This request is valid only for BTAM-controlled terminals. Symbols * and + cannot be used to define a family of terminal identifiers for LINE, but a list of identifiers can be specified.

| NUMBER
| number is the relative line number of a pooled line. (See the
| CICS/VS System Programmers Reference Manual)

| NEGPOLL
| value is the negative poll delay (see CSMT for details).

| INSERVICE|OUTSERVICE
| indicates whether the line is available for use. Changing the
| status of the line does not affect the equivalent status of the
| terminals on it.

| PURGE
| causes all transactions running with terminals on the line to
| be terminated abnormally.

| CONTROL UNITS

{INQUIRE SET} CONTROL(termid) [INSERVICE OUTSERVICE] [PURGE]	(SET ONLY)
--	------------

| CONTROL
| termid is the name of any terminal associated with the control
| unit. Symbols * and + cannot be used to define a family of
| terminal identifiers for LINE, but a list of identifiers can be
| specified.

| INSERVICE|OUTSERVICE
| Indicates whether the control unit is available for use.
| Changing the status of the control unit causes all the
| terminals associated with it to be set to the equivalent
| status.

| PURGE
| Causes all transactions running with terminals associated with
| the control unit to be terminated abnormally.

SYSTEMS

```
{INQUIRE|SET} SYSTEM[ (sysid) ]  
                [ ALL ]  
                [ INSERVICE|OUTSERVICE ]  
                [ PURGE ]                (SET ONLY)
```

SYSTEM

sysid is a 4-character system name defined in a DFHTCT TYPE=SYSTEM macro for intersystem communication (ISC) or interregion communication (IRC).

Batch regions currently connected to the CICS/VS system through IRC can be addressed by the system name "@BCH". For example:

```
CEMT SET SYSTEM @BCH INSRV
```

enables communication between CICS/VS and all batch regions.

INSERVICE|OUTSERVICE

indicates whether the system is available for use.

If INSERVICE is specified for an IRC system (that is, links to system "sysid" are via IRC), all ISC sessions owned by the system are placed in service.

If OUTSERVICE is specified for an ISC system, all ISC sessions owned by the system are placed out of service and are released; immediately if PURGE is specified; when tasks have terminated if PURGE is not specified.

1. If both the issuing system and system "sysid" have open IRC sessions (see CEMT SET IRC OPEN), and the issuing system has status 'INSERVICE' within system "sysid", then connections will be established and made available between the two systems.
2. Otherwise the system's status (and the status of the underlying sessions) is set 'INSERVICE', so that when both systems have open IRC sessions and are INSERVICE with respect to each other connections will be established. Note that CEMT INQ will indicate that systems (and their underlying sessions) are INSERVICE even though no connections can be used.

If OUTSERVICE is specified for an IRC system, the following occurs:

1. If the issuing system and "sysid" are currently connected, those connections are broken (gentle quiesce for OUTSERVICE, immediate break for OUTSERVICE PURGE). The connections cannot be reestablished until an INSERVICE request is issued for "sysid".

2. If the systems are not currently connected, connections will not be allowed until an INSERVICE request is issued for "sysid".

Note that, for INQUIRE on IRC systems, the INSERVICE/OUTSERVICE status of a given system's underlying sessions is always the same as that for the system itself.

Setting a system OUTSERVICE causes all SNA sessions owned by the system to be placed out of service and released.

PURGE

abnormally terminates all tasks running on sessions on the connected system.

DUMP DATA SET

```
INQUIRE DUMP

SET DUMP
  [ON|OFF]
  [OPEN|CLOSED]
  [SWITCH]
```

DUMP

INQUIRE DUMP will reveal whether the dump data set is OPEN or CLOSED and which of the dump data sets, DFHDMPA or DFHDMPB, is active.

SET DUMP can be used to OPEN or CLOSE the dump data set, or to SWITCH between DFHDMPA and DFHDMPB.

TRACE

```
INQUIRE TRACE

SET TRACE [ON|OFF]
```

TRACE

INQUIRE TRACE will reveal whether trace is ON or OFF.

SET TRACE can be used to set the trace ON or OFF; that is, to start or stop logging entries in the trace table.

AUXILIARY TRACE

INQUIRE AUXTRACE

SET AUXTRACE

[ON|OFF]

[OPEN|CLOSED]

[SWITCH]

AUXTRACE

INQUIRE AUXTRACE will reveal whether auxiliary trace is ON or OFF, whether the auxiliary trace data set is OPEN or CLOSED, and which of the auxiliary trace data sets, DFHAUXT or DFHBUXT, is active.

SET AUXTRACE can be used to set the auxiliary trace ON or OFF; that is, to start or stop logging entries in the auxiliary trace table, to OPEN or CLOSE the auxiliary trace data set or to SWITCH between DFHAUXT and DFHBUXT.

When the auxiliary trace has been turned on, the message "AUXILIARY TRACE FUNCTION IS ACTIVATED" will be received. However, no auxiliary trace entries will be recorded unless the in-core trace is already switched on.

PROGRAM ISOLATION TRACE (OS/VS ONLY)

INQUIRE PITRACE

SET PITRACE {ON|OFF}

PITRACE

INQUIRE PITRACE will reveal whether program isolation trace is ON or OFF.

SET PITRACE can be used to set the program isolation trace ON or OFF; that is, to start or stop writing IMS/VS program isolation trace records to the CICS/VS System Log.

VTAM ACB

INQUIRE VTAM

SET VTAM {OPEN|CLOSED|IMMCLOSE}

| VTAM
| INQUIRE VTAM will reveal whether a connection is established
| between CICS/VS and the SNA access method.

| OPEN
| establishes this connection. With ACF/VTAM it refers to the
| opening of the ACF/VTAM Application Control Block through which
| ACF/VTAM communicates with CICS/VS.

| CLOSED
| causes the connection to be terminated normally; that is,
| transactions are allowed to complete and terminals are normally
| RELEASED.

| IMMCLOSE
| causes the connection to be terminated immediately, and any
| transactions using terminals are terminated abnormally.

| BATCH

```
INQUIRE BATCH
      [TERMINAL(termid)]
      [PASSWORD|NOPASSWORD]
```

| BATCH
| INQUIRE BATCH will identify and give the status of ATP batches
| currently in the system. This request replaces "CSMT
| CWTR,STATUS".

| TERMINAL
| termid is the name of the associated terminal.

| PASSWORD|NOPASSWORD
| indicates whether or not the batch is password protected.

| INTERREGION COMMUNICATION SESSION

```
INQUIRE IRC
SET IRC {OPEN|CLOSED|IMMCLOSE}
```

| IRC
| INQUIRE IRC will reveal whether the interregion communication
| (IRC) facility is open.

| OPEN
| initializes the IRC facility for this CICS/VS system. This
| allows connections to be established between this system and
| other systems (including DL/I batch regions using shared
| database under OS/VS).

CLOSED

terminates the IRC facility for this CICS/VS system after tasks using the session have terminated normally.

IMMCLOSE

terminates the IRC facility immediately. All tasks using the session are abnormally terminated.

IRBATCH

```
INQUIRE IRBATCH
  [TASK(number)]
```

IRBATCH

INQUIRE IRBATCH identifies, for each batch region currently connected to CICS/VS via the Interregion Communication (IRC) facility, the batch job currently sharing data with CICS/VS. The identification consists of:

jobname.stepname.procname - time

or, if the program has issued a checkpoint:

chkpid - time

TASK

'number' is the task number of the mirror transaction running on behalf of a specific batch job.

SHUT CICS/VS DOWN

```
PERFORM SHUTDOWN
  [XLT(suffix)]
  [PLT(suffix)]
  [IMMEDIATE]
  [DUMP]
```

SHUTDOWN

causes CICS/VS to be shut down. XLT and/or PLT can be used to specify the suffixes of a transaction list table and/or a program list table to be used for the shutdown. IMMEDIATE causes the system to be shut down, terminating all active tasks and SNA sessions. If IMMEDIATE is not specified, all tasks are allowed to finish, and SNA sessions are allowed to terminate normally. If DUMP is specified then a dynamic storage dump is produced upon completion of the termination process.

| Note: Transactions listed in the specified transaction list
| table (TLT) can be initiated after the SHUTDOWN request, and
| before the system quiesces. The default TLT should contain an
| entry for the master terminal transaction. This ensures that
| the master terminal operator can issue an immediate shutdown
| if, for example, a task is found to be suspended after an
| ordinary (nonimmediate) shutdown has been requested.

PRODUCE A DUMP AND CONTINUE EXECUTION (SNAP)

```
PERFORM SNAP
      [PARTITION]
      [FORMAT]
```

SNAP

causes a partition and/or formatted dump to be produced, if PARTITION and/or FORMAT is specified. If neither is specified, no dump, or a partition dump, or a formatted dump, will be produced, depending on what was specified in the System Initialization Table (SIT). Afterwards execution continues.

RESET CICS/VS DATE AND TIME-OF-DAY

```
PERFORM RESET
```

RESET

causes the CICS/VS date and time of day to be synchronized with the OS/VS or VSE system date and time-of-day.

Supervisory Terminal (CEST) Request Formats

The keywords in these commands are the same as those used in the CEMT commands. Only one new keyword (SUPRID) is introduced. This is the keyword used to identify the supervisor performing the transaction, and its value is the two-character suffix of a terminal list table (TLT).

TERMINALS

```
{INQUIRE|SET} TERMINAL[ (termid) ] SUPRID(suprid)
      [CLASS (clasid)|SYSTEM (sysid)|ALL]
      [TRANID (tranid) ] (INQ ONLY)
      [PRIORITY (value) ]
      [NETNAME (netname) ] (INQ ONLY)
      [PAGE|AUTOPAGE]
      [INSERVICE|OUTSERVICE]
      [ATI|NOATI]
      [TTI|NOTTI]
      [PURGE] (SET ONLY)
      [ACQUIRED|COLDACQ|RELEASED]
      [INTLOG|NOINTLOG]
```

```

{INQUIRE|SET} NETNAME[ (netname) ] SUPRID(suprid)
[ SYSTEM(sysid)|ALL ]
[ TRANID(tranid) ] (INQ ONLY)
[ PRIORITY(value) ]
[ TERMINAL(termid) ] (INQ ONLY)
[ PAGE|AUTOPAGE ]
[ INSERVICE|OUTSERVICE ]
[ ATI|NOATI ]
[ TTI|NOTTI ]
[ PURGE ] (SET ONLY)
[ ACQUIRED|COLDACQ|RELEASED ]
[ INTLOG|NOINTLOG ]

```

LINES

```

{INQUIRE|SET} LINE(termid) SUPRID(suprid)
[ NUMBER(numbr) ]
[ INSERVICE|OUTSERVICE ]
[ PURGE ] (SET ONLY)

```

CONTROL UNITS

```

{INQUIRE|SET} CONTROL(termid) SUPRID(suprid)
[ INSERVICE|OUTSERVICE ]
[ PURGE ] (SET ONLY)

```

TASKS

```

{INQUIRE|SET} TASK(number) SUPRID(suprid)
[ CLASS(clasid)|ALL ]
[ NUMBER(value) ] (INQ ONLY)
[ TRANID(tranid) ] (INQ ONLY)
[ FACILITY(faid) ] (INQ ONLY)
[ ACTIVE|SUSPENDED ] (INQ ONLY)
[ SHORT|LONG ] (INQ ONLY)
[ TASK|TERM|DEST ] (INQ ONLY)
[ PURGE ] (SET ONLY)

```

Ordinary Terminal (CEOT) Request Formats

If an operator types the transaction identifier CEOT, he receives a display of the following form:

```
Ter (tmid) Tra (CEOT) Pri (nnn) Pag Ins Ati Tti
```

CEOT SYNTAX:

[PAGE|AUTOPAGE]

[ATI|NOATI]

[TTI|NOTTI]

This display shows him his terminal's identifier, the transaction running on his terminal, the priority of the task set up to run the transaction, and the status of his terminal. He can change the terminal status by specifying one or more of the options shown in the syntax panel.

Chapter 5. Master Terminal Transaction (CSMT)

| This transaction has been replaced by the enhanced master terminal
| transaction (CEMT), which provides more facilities. CSMT is still
| available in CICS/VS Version 1 Release 5, but the CSMT IRC request is no
| longer supported.

Transaction Request Formats

This chapter shows how to request the various services provided by the CSMT transaction. The operands can be entered in any order, but the parameter list keyword must be entered last. For example:

```
CSMT CMXT,INQ,CLASID=02
OR
CSMT INQ,CMXT,CLASID=02
```

TIME AND INTERVAL

This section deals with the synchronizing of CICS/VS date and time with the operating system, and also with the control of time intervals for partition/region exits, and task stall times of runaway tasks.

Inquire About, or Set, the Partition/Region Exit Time Interval

Request format:

```
CSMT TIM,{INQ|n}
```

The partition/region exit time interval is the maximum interval of time that CICS/VS releases control to the operating system in the event of there being no transactions ready to resume processing. This time interval can be any three- to seven-digit value in the range 100 to 2,700,000 milliseconds. A typical range of operation might be 100 to 2,000 milliseconds. A short interval can enable much of the CICS/VS nucleus to be retained in dynamic storage, and not be paged out at times of low terminal activity. Once a task is being executed, its requests for terminal services and the completion of the services are recognized by the system, and this maximum delay interval is overridden.

Note: The value specified must not be greater than the runaway task time interval (ICVR) or the system stall time interval (ICVS) value. For further details of these values, see the CICS/VS System Programmer's Reference Manual.

Examples:

```
Enter:      CSMT TIME,INQ
Receive:    TIME INTERVAL VALUE IS 1000

Enter:      CSMT TIME,2000
Receive:    THE TIME INTERVAL VALUE IS CHANGED TO 2000 FROM 1000

Enter:      CSMT
Receive:    WHAT SERVICE IS REQUESTED
Enter:      TIME
Receive:    WHAT IS THE NEW TIME INTERVAL VALUE
Enter:      2000
Receive:    THE TIME INTERVAL IS CHANGED TO 2000 FROM 1000
```

Synchronize CICS/VS Date and Time-of-Day with that of the Operating System

Request format:

CSMT RES

This function can be used to synchronize the CICS/VS date and time-of-day to the OS/VS or VSE system date and time-of-day after the console operator has changed the system date or the 24-hour clock. If the service option is not invoked, CICS/VS resynchronizes itself automatically at midnight. Further details of CICS/VS control of date and time-of-day are given in CICS/VS Introduction to Program Logic.

The final reply message depends on the conditions detected during the processing of the service as follows:

```
Receive:    TIME/DATE CHANGED
Receive:    TIME=new time DATE=new date
```

The above message is sent if the change reflected an advancing of the 24-hour clock.

```
Receive:    RESET DEFERRED - TIME ADJ. SCHEDULED
Receive:    TIME=old time DATE=old date
```

The above message is sent if the change reflected a roll-back of the 24-hour clock.

```
Receive:    CLOCK INOPERATIVE - CONSOLE NOTIFIED
Receive:    TIME=old time DATE=old date
```

This message is sent if the time-of-day clock is inoperative. A similar message will have been sent to the console operator, since he may be able to correct the situation. Loss of the time-of-day clock is considered a catastrophic situation and if it has not been corrected by the time that the task control program next attempts to perform a "store clock" operation, CICS/VS will abend.

Care should be taken when the 24-hour clock is rolled back, because this will cause the time-stamping of journal records to be discontinued.

Inquire About, or Set, the Stall Time Interval (in
Milliseconds)

Request format:

CSMT STA,{INQ|n}

If all tasks currently executing within CICS/VS have been unable to proceed (probably because of main storage dependency) for a period of time designated as the "stall time interval", it is assumed that a total system interlock (a stall) exists. Hence corrective action is initiated (terminating those tasks identified by the user as being "purgeable"). This time interval can be any three- to six-digit value that is not less than the partition/region exit time interval and not greater than 327,670 milliseconds. A typical stall time interval might be 20,000 milliseconds.

Note: The value n specified will be rounded down to a multiple of 10 milliseconds.

Examples:

```
Enter:      CSMT STA,INQ
Receive:    STALL INTERVAL IS 15000

Enter:      CSMT STA,12000
Receive:    STALL INTERVAL IS CHANGED TO 12000 FROM 15000
```

Inquire About, or Set, the Runaway Task Interval (in
Milliseconds)

Request format:

CSMT {RUN|RNAWAY},{INQ|n}

Any task given control through the task control program should voluntarily give up control to the task control dispatcher within a user-defined interval of time. Tasks not meeting this time requirement are considered to be in a runaway (logical loop) state and are abnormally terminated. This time interval can be any three- to seven-digit value that is not less than the partition/region exit time interval and not greater than 2,700,000 milliseconds. A typical runaway task time interval might be 5,000 milliseconds.

Note: The value n specified will be rounded down to a multiple of 10 milliseconds.

Examples:

```
Enter:      CSMT RNOWAY,INQ
Receive:    RUNAWAY TASK INTERVAL IS 4000

Enter:      CSMT RNOWAY,5000
Receive:    RUNAWAY TASK INTERVAL IS CHANGED TO 5000 FROM 4000

Enter:      CSMT RUN
Receive:    WHAT IS THE NEW RUNAWAY TASK INTERVAL
Enter:      6000
Receive:    RUNAWAY TASK INTERVAL IS CHANGED TO 6000 FROM 5000

Enter:      CSMT RNOWAY,0
Receive:    RUNAWAY TASK INTERVAL IS CHANGED TO 0 FROM 6000
```

Note: Setting the runaway task interval to zero causes it to be inoperative.

WAIT COUNT AND STORAGE CUSHION

This section deals with the setting of values affecting CICS/VS releasing and regaining of control. It also deals with dynamically controlling the size of CICS/VS dynamic storage areas.

Inquire About, or Set, the Wait Count Override (CICS/OS/VS Only)

Request format:

CSMT IOCP,{INQ|n}

Note: n, the Input/Output Wait Count Percentage, is a value from 0 to 50.

When CICS/OS/VS releases control to the operating system because all internal tasks are waiting for the completion of an event (normally an I/O operation), it passes to OS/VS a list of the events on which tasks are waiting. While it is possible for CICS/VS to regain control when any one event completes, it may be more efficient to allow a number of tasks to complete before control is regained, thus allowing multiple CICS/VS tasks to proceed before re-invoking an OS/VS wait. For this reason, IOCP is specified as value by the system programmer. Its function is to regulate the number of events to be completed before control is regained by CICS/VS.

For further details of IOCP and its use in calculating wait count, see the CICS/VS System Programmer's Reference Manual.

Examples:

```
Enter:      CSMT IOCP,25
Receive:    IOCP HAS BEEN CHANGED FROM 0 TO 25

Enter:      CSMT
Receive:    WHAT SERVICE IS REQUESTED?
Enter:      IOCONTROL
Receive:    WHAT IS THE NEW IOCP VALUE?
Enter:      50
Receive:    IOCP HAS BEEN CHANGED FROM 25 TO 50
```

Dynamic modification of IOCP is an aid to tuning and can be employed to optimize processor use.

Inquire About, or Set, the Storage Cushion Size

Request format:

CSMT CUS,{INQ|n}

CICS/VS maintains a reserved amount of space in its dynamic storage area. This space is known as the storage cushion. Its size is specified by the user during system initialization and can be dynamically changed through the master terminal facilities. It is used by CICS/VS to minimize the possible impact of system overload conditions and to provide a means of detecting that an overload condition is imminent or exists. When a portion of the cushion must be used to satisfy a request for storage, further transaction initiation is suspended by CICS/VS until the total reserve space has been reacquired.

The size of the storage cushion can be changed through the facilities of a master terminal, by expressing the size as a number of bytes within the range of 20 to 524,288 bytes. For its internal representation of cushion size, the system always rounds the value given, upward to the next operating system page size multiple. When a change is requested in the cushion size, the size does not actually change until the existing cushion is released. When the cushion is regained, it will be the size indicated in the change request.

Examples:

```
Enter:      CSMT CUS,INQ
Receive:    CUSHION SIZE IS 4096

Enter:      CSMT CUS,5000
Receive:    CUSHION SIZE IS CHANGED TO 8192 FROM 4096
```

Short Wait Interval (in Milliseconds) (CICS/DOS/VS only)

Request format:

CSMT SWT,{INQ|n}

If CICS/DOS/VS is waiting for completion of a disk I/O operation, and there is no other work to be done, it will issue a VSE WAIT instruction to pass control to the operating system.

The short wait interval (SWT) is the period of time during which VSE has control, before CICS/VS regains control to check for completion of the I/O operation. Usually, a disk I/O operation takes between 20 and 40 milliseconds. If the SWT value is set too low, there will be very little gain because of the frequent interruptions to processing. If the value is too high, it may result in an unnecessary increase in response time. The short wait interval should have a value in the range 0 to 1000 milliseconds. The default value is 40 milliseconds. If 0 is specified, the VSE WAIT will not be issued. Note that the short wait interval is only effective as long as there is no other processing to be done in the CICS/VS system.

Examples:

```
Enter:      CSMT SWT,INQ
Receive:    SHORT WAIT INTERVAL IS 50

Enter:      CSMT SWT,60
Receive:    SHORT WAIT INTERVAL IS CHANGED FROM 60 to 50
Enter:      CSMT SWT
Receive:    WHAT IS THE NEW SHORT WAIT INTERVAL
Enter:      70
Receive:    SHORT WAIT INTERVAL IS CHANGED FROM 70 to 60
```

TASKS

This section deals with the control of task counts, the listing of active and suspended tasks, and task termination and initiation.

There are three different types of task counts kept by CICS/VS, with three corresponding types of user-specified maximums:

1. The number of concurrent tasks in the system, including active and suspended tasks (MAXT)
2. The number of tasks on the active chain that will be inspected during a dispatch scan (AMXT)
3. The number of concurrent tasks of a particular, user-specified, class (CMXT)

Each one of the maximum task values may be changed dynamically, within the range 1 to 999, the only restriction being that both AMXT and CMXT must be less than MAXT. There are ten classes, 1 to 10, and ten corresponding counts are kept by the system, each with its own, user-specified, maximum task value (CMXT).

The following is a brief description of how each of these three types of maximum number of tasks may be used to help tune the system.

- If a user has a need for many concurrently executing conversational tasks, he may want to make MAXT equal to his total number of terminals. However, in order to reduce paging, which would tend to degrade his system, he could use AMXT to limit the number of concurrent active tasks (an active task being any task which is not awaiting completion of a terminal event.)
- A user may wish to tune his system by controlling the mix of transaction classes within the system, thus controlling the drain on system resources. For example, one transaction class could easily dominate the system, such as: a broadcast to all terminals, or several tasks engaged in file browse operations. The user may prevent any class of transaction from dominating the system by specifying an appropriate value for each of ten class maximum (CMXT) parameters.

Inquire About, or Set, the Maximum Number of Tasks (*)

Request format:

CSMT MAX, {INQ|n}

Examples:

Enter: CSMT MAX, INQ
Receive: MAXIMUM TASKS IS 20

Enter: CSMT MAX, 15
Receive: MAXIMUM TASKS IS CHANGED TO 15 FROM 20

Inquire About, or set, the Maximum Number of Active Tasks

Request format:

CSMT AMX, {INQ|n}

Example:

Enter: CSMT AMXT, 15
Receive: MAX ACTIVE TASK CHANGED FROM 20 TO 15

Inquire About, or set, the Maximum Number of Class Tasks

Request format:

CSMT CMX,{INQ|n},{CLASID=m}

Note: m is a value from 1 to 10 that corresponds to the value specified in the TCLASS operand for entries in the program control table (see the CICS/VS System Programmer's Reference Manual).

Examples:

```
Enter:      CSMT CMX,3,CLASID=5,
Receive:    MAX TASK VALUE FOR CLASS 5 CHANGED FROM 4 TO 3

Enter:      CSMT
Receive:    WHAT SERVICE IS REQUESTED?
Enter:      CMXT
Receive:    ENTER CLASID
Enter:      CLASID=7
Receive:    ENTER NEW MAX TASK VALUE FOR CLASS 7
Enter:      2
Receive:    MAX TASK VALUE FOR CLASS 7 CHANGED FROM 4 TO 2
```

Inquire About, or Set, the Maximum Number of ATP Batch Tasks

Request format:

CSMT ATP,{INQ|n}

This function can be used to inquire about or change the maximum number of ATP batches that can be in process at any one time. This number does not include those being operated upon by CRDR or CWTR.

Example:

```
Enter:      CSMT INQ,ATP
Receive:    ATP MAXIMUM TASKS IS 10
```

Inquire About, or Set, the Batch Task Limit

Request format:

CSMT {BAT|BMAXT},{INQ|n}

BMAXT is the limit used to determine if a new ATP batch task may be initiated. If the number of tasks currently in the system is less than BMAXT, then a new ATP batch task may be initiated. If the number of

tasks currently in the system is equal to or greater than BMAXT, then a new ATP batch task may not be initiated.

Examples:

```
Enter:      CSMT BMAXT,INQ
Receive:    BATCH MAXIMUM IS 15

Enter:      CSMT BMAXT,12
Receive:    BATCH MAXIMUM IS CHANGED TO 12 FROM 15
```

Inquire About Status of ATP Batch

Request format:

CSMT CWTR,STATUS

This function can be used to inquire into the status of batches currently in the system without regard to possible password protection.

Example:

```
Enter:      CSMT CWTR,STATUS
Receive:    DFH1960 T40A XXXXXXXX STATUS BEING SAVED
            DFH1960 T51C XXXXXXXX STATUS BEING PROCESSED
```

Refer to the explanation of message DFH1960 in the CICS/VS Messages and Codes manual for further information. The word "BATCH" in the normal message will be replaced, in this instance, by the terminal identification and, if the batch is password protected, an asterisk.

Request a Task List (All Tasks in System by Task Number) (*)

Request format:

CSMT TAS

This function is used to indicate all tasks on the suspended and active task chains. Internal CICS/VS tasks such as terminal control, task control, asynchronous transaction processor, and journal control are not listed.

Example:

```
Enter:      CSMT      TAS
Receive:    TASKNO  TRANID  ACT/SUSP  FAC.NAME  TYPE
            00001   INTM    SUSP      LP1       TASK
            00014   CSMT    ACT       LP1       TERM
```

Note: The suspend chain (SUSP) is searched first. The facility name and type are listed when they apply.

Terminate a Task Using Task Number (*)

Request format:

CSMT TRMNAT,{YES|NO},n

Notes:

1. n, the task number, is obtained from a task list.
2. YES indicates immediate termination. Immediate termination can cause problems under certain conditions. Operators are thus advised to contact the system programmer before using the function.

This function is used to terminate a task using the task number indicated by a task list transaction. Certain CICS/VS tasks (such as journal control) do not have a task number and cannot be terminated this way.

If task number 5, for example, is to be terminated, enter:

CSMT TRMNAT,YES,5

where the task number is 5, and the "YES" keyword specifies that termination is to be immediate, if possible. If "NO" is specified, the task is not scheduled for immediate termination, but rather scheduled for deferred termination (waiting until the task invokes a task control service).

In response to a YES keyword the transaction may abend immediately or the abend may be deferred because every operation, needed to terminate the task, could not be performed. In such a case it is necessary to enter the YES keyword a second time. The second time "yes" is entered, the task is immediately abnormally terminated.

Example:

Enter: CSMT TRMNAT,YES,5
Receive: TASK WILL BE TERMINATED

Terminate a Task Using Terminal Identification (*)

Request format:

CSMT TRMNAT,TERMID=xxxx

Example:

Enter: CSMT TRMNAT,TERMID=L70B

The response to this service request depends on several conditions. Following each response below are the conditions that must prevail.

Receive: TASK WAS TERMINATED

This is the normal response, indicating the task was immediately terminated. This occurs when all of the following conditions are true.

1. There is no outstanding read or write on the line
2. The task has issued a DFHTC TYPE=WAIT macro instruction
3. The associated terminal is out of service

Receive: TASK WAS ACTIVE

This response indicates a deferred termination of the task. This occurs when all the following are true:

1. There is no outstanding read or write on the line
2. The task has not issued a DFHTC TYPE=WAIT macro instruction
3. The associated terminal is out of service

Receive: PUT TERMID=L70B OUT OF SERVICE

This response indicates that the terminal is in service and that nothing has been done to the task.

Receive: TASK WAS NOT ACTIVE

There was no active task on the specified terminal. The terminal could either be in or out of service.

Inquire About, or Set, a Destination Trigger Level

Request format:

CSMT TRI,{INQ|n},DESTID=xxxx

If a transient data intrapartition data set is marked for automatic task initiation, CICS/VS automatically initiates the task when the specified number of requests for output operations (indicated by the trigger level for that destination) has been issued for that destination. The trigger level can be any value between 0 and 32767.

Examples:

```
Enter:    CSMT TRI,INQ,DESTID=DCIN
Receive:  TRIGGER LEVEL IS 6

Enter:    CSMT TRI,5,DESTID=DCIN
Receive:  TRIGGER LEVEL IS CHANGED TO 5 FROM 6
```

Note: Changing the trigger level to a number less than or equal to the number of messages on the queue does not cause immediate task initiation. Initiation will occur only when a further output request has been made, after which the new trigger level will be used to determine when a task is to be initiated. For a more detailed explanation of Automatic Task Initiation (ATI), see the CICS/VS Problem Determination Guide.

Inquire About, or Set, the Activity Keypoint Trigger Level

Request format:

CSMT AKP,{INQ|n}

This function can be used to inquire about or change the number of log records written between activity keypoints.

If activity keypoints are to be taken, CICS/VS automatically initiates a keypoint task when the specified number of output operations has been issued to the system log. The trigger level can be any value between 200 and 65535.

If AKPFREQ=0 is specified in the system initialization table (the DFHSIT macro), AKPFREQ=0 was specified on startup, or if KPP=NO was specified on startup, the frequency value cannot be changed by the master terminal operator.

Examples:

```
Enter:    CSMT AKP,INQ
Receive:  FREQUENCY IS 500

Enter:    CSMT AKP,600
Receive:  FREQUENCY IS CHANGED TO 600 FROM 500
```

Note: This function is not valid for the CICS/DOS/VS Entry Level System. In such a case an error message appears at the terminal.

TRANSACTIONS

This section deals with the priorities and the enabling and disabling of transactions.

The priority of a transaction must be in the range from 0 through 255, where 255 represents the highest priority.

The parameter list keyword CLASID is used to identify the suffix of a transaction list table (TLT). For further details see Appendix B.

Inquire About, or Set, the Priority of a Single Transaction

Request format:

CSMT PRI,TRNACT,SIN,{INQ|n},TRANID=xxxx

Examples:

Enter: CSMT PRI,TRNACT,SIN,INQ,TRANID=LTD1
Receive: THE TRANSACTION PRIORITY IS 200

Enter: CSMT PRI,TRNACT,SIN,205,TRANID=LTD1
Receive: TRANSACTION PRIORITY IS CHANGED TO 205 FROM 200

Set the Priority of a List of Transactions

Request format:

CSMT PRI,TRNACT,LIS,n,TRANID=xxxx[,...]

Example:

Enter: CSMT PRI,TRNACT,LIST,150,TRANID=CSOT,CSFE,CSSN
Receive: THE TRANSACTION PRIORITY IS 150

Set the Priority of a Class of Transactions

Request format:

CSMT PRI,TRNACT,CLA,n,CLASID=xx

Example:

Enter: CSMT TRNACT,CLA,PRI,150,CLASID=FE
Receive: THE TRANSACTION PRIORITY IS 150

Set the Priority of All Transactions

Request format:

CSMT PRI,TRNACT,ALL,n

Enable/Disable Transactions (*)

Request format:

CSMT {ENA|DISAB},TRNACT,{SIN|LIS|CLA|ALL},{TRANID=xxxx|
TRANID=xxxx[,...]|CLASID=xx}

An inquiry about transaction status (enabled/disabled) can be requested and the status of the transaction changed. However, no transaction starting with "C" is ever disabled, because these are reserved for use by CICS/VS. All tasks in the system can be listed. Tasks can be disabled using the task number.

This function is used to make entries in the program control table (PCT) available or unavailable for use.

Examples:

```
Enter:      CSMT ENA,TRNACT,SIN,TRANID=CSFE
Receive:    TRANSACTION CSFE IS ENABLED

Enter:      CSMT ENA,TRNACT,LIS,TRANID=CSFE,MET1
Receive:    TRANSACTION IDS
            STATUS IS CHANGED

Enter:      CSMT ENA,TRNACT,CLA,CLASID=02
Receive:    TRANSACTION IDS
            STATUS IS CHANGED

Enter:      CSMT ENA,TRNACT,ALL
Receive:    TRANSACTION IDS
            STATUS IS CHANGED
```

Note: The transaction identifications for the 3270 PF and PA keys are: PF1 through PF24, and PA1 through PA3. The operator identification card reader is OPID, the light pen is LPA, and the magnetic stripe reader is MSRE.

PROGRAMS

This section deals primarily with the status and the enabling or disabling of programs. It does, however, also discuss the loading of an address for a newly link-edited program.

Status of a Program (*)

The status of a program is comprised of the following:

- The language in which the program was written
- The size of the program in bytes
- Whether or not the program is permanently resident in storage
- Whether or not the program is currently in storage
- The number of times the program has been used
- The number of transactions that are currently using the program

The master terminal transaction can be used to verify the status of a program before attempting to alter the program or system.

Program status can be changed by enabling or disabling the program.

CAUTION: A transaction identification that directly invokes a disabled program will be terminated abnormally with an abend code of APCT.

If a disabled program is unconditionally requested during the processing of a transaction, the task is terminated abnormally. If a disabled program is conditionally requested, a PGMIDER return code is given to the requesting program. See CICS/VS Application Programmer's Reference Manual (Macro Level) for further details of PGMIDER return code.

Request format:

CSMT {PRO|PGRM},SIN,INQ,PGRMID=xxxxxxx

Example:

```
Enter:    CSMT PRO,SIN,INQ,PGRMID=FC001
Receive:  PROGRAM FC001 IS IN PL/I,
          IT IS 9128 BYTES LONG,
          NOT PERMANENTLY RESIDENT,
          IT HAS BEEN USED 0 TIMES,
          ITS CURRENT USE COUNT IS 0
          PROGRAM IS DISABLED
```

Enable/Disable Programs (*)

Request format:

CSMT {ENA|DISAB},{PRO|PGRM},{SIN|LIS|CLA|ALL},
{PGRMID=xxxxxxx[,...]}[CLASID=xx]

This function is used to make entries in the processing program table (PPT) available or unavailable for use. However, no program with a prefix of "DFH" will be disabled.

When a program is disabled, a search is made for any transactions that directly call that program. If found, all such transactions are also disabled.

Note: The master terminal program accumulates a list of the identifications relating to bad programs and displays them.

Examples:

```
Enter:      CSMT ENA,PGRM,SIN,PGRMID=FC001
Receive:    PROGRAM FC001 IS ENABLED

Enter:      CSMT ENA,PGRM,LIS,PGRMID=FC001,FC002,FC003
Receive:    FOLLOWING PROGRAM IDS CANNOT BE FOUND
            FC003
            GOOD PROGRAM IDS
            STATUS IS CHANGED

Enter:      CSMT ENA,PGRM,CLA,CLASID=05
Receive:    GOOD PROGRAM IDS
            STATUS IS CHANGED

Enter:      CSMT ENA,PGRM,ALL
Receive:    GOOD PROGRAM IDS
            STATUS IS CHANGED
```

Alter the PPT to Point to New Link-edited Version of Program

Request format:

CSMT NEW,PGRMID=xxxxxxx

This function is used to load the address of a newly link-edited program in the program's PPT entry. This will not occur for programs currently being executed. In such a case, the user receives a message saying that the program is in use and cannot be the subject of a newcopy request, and the program is disabled.

Example:

```
Enter:      CSMT NEW,PGRMID=PROGVER
Receive:    PROGRAM PROGVER
            IS NOW A NEW COPY
```

DATA SETS

The section deals with the status, enabling or disabling, and opening and closing of data sets; it also discusses the switching of dump data sets, and deals with the commands for initializing and terminating shared data base sessions.

Inquire About Status of Data-Base Data Sets (*)

Request format:

CSMT DAT,INQ,{FILEID=xxxxxxx[,...]|ALL}

The status of data base data sets reflects one or more of the following:

- Read
- Update
- Add
- Exclusive control
- Browse
- Enabled or disabled
- Open or closed

The status of all the above can be changed or inquired about. One or more data sets can also be opened or closed. See Appendix A for explanations of the above. The status of remote data base data sets cannot be inquired about or changed.

CAUTION: If a transaction tries to use a disabled data set, the transaction will be terminated abnormally.

The status facility can be used to inquire about one or more entries in the file control table (FCT) and to change the status of these entries. Valid status requests are READ, UPDATE, ADD, EXCL, BROWSE, and DELETE.

Example:

Enter: CSMT DAT,INQ,FILEID=ISAM1,ISAM2,BDAMA1
Receive: STATUS OF SPECIFIED FILE IS:

FILEID	-----STATUS-----
ISAM1	CLOSED,READ,ADD,BROWSE,ENABLED
ISAM2	OPEN,READ,ADD,DELETE,ENABLED
BDAMA1	OPEN,READ,DISABLED
END	

Note: Under OS/VS2 Release 2 and later (MVS), for OPEN mixed mode files, the mode in which the files are currently open is indicated. For example:

MIXED 1 OPEN(ICIP), READ,ENABLED

Change Status of Data-Base Data Sets (*)

Request format:

```
CSMT DAT,{ON|OFF},{REA|UPD|ADD|EXC|BRO|DEL},
{FILEID=xxxxxxx[,...]|ALL}
```

Example:

Enter: CSMT DAT,ON,READ,ADD,FILEID=DBAS1

Receive: NEW STATUS OF SPECIFIED FILE IS:

FILEID	——STATUS——
DBAS1	CLOSED,READ,ADD,BROWSE,DISABLED
END	

Notes:

1. One or more status items may be selected.
2. For OS/VS Release 2 and later (MVS), status change is not supported for ICIP files.
3. The status can only be changed if the data sets were originally generated with the function being changed.
4. CSMT DAT changes the status of the data sets in CICS/VS not the status of the access method generally. For example, if a data-base data set has been available for update, changing the status to READ only, using CSMT DAT, will make the data set unavailable for update by other partitions. The status of a remote data set cannot be changed.

Enable/Disable Data-base Data Sets (*)

Request format:

```
CSMT {ENA|DISAB},DAT,{FILEID=xxxxxxx[,...]|ALL}
```

This function is used to make entries in the FCT available or unavailable for use. The function is not valid for remote data sets.

Example:

Enter: CSMT DAT,ENA,FILEID=DBASE1,DBS5

Receive: VALID FILE(S) ENABLED

Open/Close Data-Base Data Sets (*)

Request format:

CSMT {OPE|CLO},DAT,{FILEID=xxxxxxx[,...]|ALL}

The facility allows the terminal operator to place part or all of the data base offline or online to realtime processing. If all data sets are specified, the keyword ALL must be used in the first line entered.

Examples:

```
Enter: CSMT CLO,DAT,FILEID=DBASE1,DBASE2,DBASE3
Receive: WHAT TYPE OF DATA SETS ARE BEING CLOSED? (DATABASE,
        TRANSDATA OR DUMP).

Enter: DATABASE
Receive: NEW DATA BASE STATUS IS:

        FILE ID _____ STATUS _____
        DBASE3      **DOES NOT EXIST
        DBASE2 CLOSED,READ,ENABLED
        DBASE1 CLOSED,READ,DISABLED
        **END**

Enter: CSMT OPEN,DAT,ALL
Receive: NEW DATA BASE STATUS IS:

        FILE ID _____ STATUS _____
        (a complete list of all data sets and their status)

        **END**
```

Notes:

1. If a data set is being accessed by other transactions when it is closed, the other transactions may be abnormally terminated.
2. CSMT cannot be used to open or close a VSE DL/I data base. An "OPEN DEFERRED" VSE DL/I data base will be opened when the first data base call is issued against that data base.
3. (MVS only) An OPEN request on a mixed-mode file will cause the file to be opened with the characteristics of a VSAM file, rather than VSAM (ICIP).
4. Remote data base data sets cannot be opened or closed.

Open/Close Extrapartition Data Sets (*)

Request format:

CSMT {OPE|CLO},TRANSD,DESTID={xxxx[.xx]}[,...]

Note: Use DESTID with ..xx to specify the DCB (OS/VS) or DTF (VSE) when opening a data set. Under OS/VS, the user can specify override parameters for the DCB by using DESTID with ..DY and then entering the OVPARM keyword followed by a list of parameters when prompted (see example below). The OVPARM parameters are listed in Appendix B.

CICS/VS extrapartition transient data destinations (sequential data sets) may be opened or closed using the master terminal transaction. Under CICS/DOS/VS, all sequential disk data sets subject to dynamic OPEN or CLOSE must be defined in the destination control table (DCT) as non-resident, or unpredictable results may occur. In this case, the DESTID keyword with ..xx is required.

For a detailed explanation on how to use dynamic open/close, see the CICS/VS System Programmer's Reference Manual.

Note: Open/Close for extrapartition data sets is not valid for remote destinations.

An example of opening one or more transient data extrapartition data sets under CICS/OS/VS is:

```
Enter:      CSMT TRANSD
Receive:    WHAT SERVICE IS REQUESTED?
Enter:      OPEN
Receive:    SPECIFY DESTINATION I.D.'S
Enter:      DESTID=XDK1..S6,XDK2..DY,XTDA,XTDB,XDK3..DY,XXXX
Receive:    SPECIFY OVERRIDES FOR DESTID XDK3
Enter:      OVPARM=INPUT,2,VB,,40,80,TDXDK3I
Receive:    SPECIFY OVERRIDES FOR DESTID XDK2
Enter:      OVPARM=OUTPUT,,FBS,,40,120,TDXDK20
Receive:    XXXX CAN NOT BE OPENED
            XDK3..DY HAS BEEN OPENED
            XTDB   HAS BEEN OPENED
            XTDA   HAS BEEN OPENED
            XDK2..DY HAS BEEN OPENED
            XDK1..S6 HAS BEEN OPENED
            **END**
```

In the preceding example, destination XXXX is invalid. Destination XDK3 and XDK2 (using ..DY) specify the need for building their DCBs (OS/VS only). In this case, the DCB is created with the following options:

a. For XDK3:

- Open option is input
- Two buffers
- Variable-blocked record format
- No error option specified
- 40 is logical record size
- 80 is block size
- TDXDK3I is the DD card name

b. For XDK2:

- Open option is output
- Buffers not specified
- Fixed block standard format
- No error option specified
- 40-byte logical record
- 120-byte block size
- DD name is TDXDK20

XDK1..S6 specifies destination XDK1 (as coded in the DESTID operand of the destination control table (DCT)) using nonresident data set control block DFHTRNS6. See the CICS/VS System Programmer's Reference Manual for a discussion of the destination control table (DCT) and nonresident control blocks.

An example of closing one or more transient data extrapartition data sets under CICS/OS/VS is:

```
Enter:      CSMT CLOSE,DESTID=XDK1..S6,DK2..DY,XTDA,XTDB,XDK3,"
            XXXX
Receive:    WHAT TYPE OF DATA SETS ARE BEING CLOSED (DATABASE,
            TRANSDATA, OR DUMP).
Enter:      TRANSIENT DATA
Receive:    XXXX      CAN NOT BE CLOSED
            XDK3      HAS BEEN CLOSED
            XTDB      HAS BEEN CLOSED
            XTDA      HAS BEEN CLOSED
            XDK2..DY  HAS BEEN CLOSED
            XDK1..S6  HAS BEEN CLOSED
            **END**
```

In the example above, invalid destination XXXX caused a message to be produced. (See CICS/VS Messages and Codes.)

Enable/Disable Extrapartition Data Sets (*)

Request format:

```
CSMT {ENA|DISAB},TRANSD,DESTID=xxxx,...
```

The function is used to make extrapartition entries in the DCT available or unavailable for use. No destination starting with "C" will be disabled, since these are reserved for use by CICS/VS.

Note: Enable/Disable for extrapartition data sets is not valid for remote destinations.

Example:

```
Enter:      CSMT DISAB,TRANSD,DESTID=DEST1,DEST2
Receive:    VALID DESTINATION (S) DISABLED
```

Open/Close Dump Data Sets (*)

Request format:

```
CSMT {OPE|CLO},{DUM|DUMP}
```

Optionally, the user can define two dump data sets (DFHDMPA and DFHDMPB), alternating between them during realtime execution of CICS/VS.

If there are two dump data sets, a "switch" request closes the dump data set that is currently open and opens the other dump data set. This allows the user to print the CICS/VS formatted dumps on the first dump data set without having to terminate CICS/VS.

Example:

```
Enter:      CSMT OPE,DUMP
Receive:    DFHDMPA IS NOW THE ACTIVE DUMP DATA SET
```

Switch Dump Data Sets (*)

Request format:

CSMT SWI

Examples:

```
Enter:      CSMT SWI
Receive:    DFHDMPB IS NOW THE ACTIVE DUMP DATASET
```

```
Enter:      CSMT SWI
Receive:    DFHDMPA IS NOW THE ACTIVE DUMP DATASET
```

```
Enter:      CSMT SWITCH
Receive:    DFHDMPB IS NOW THE ACTIVE DUMP DATASET
```

Close DL/I Data Base to Updates (CICS/OS/VS only)

Request format:

CSMT DBD,DAT,FILEID=xxxxxxxx

A DL/I data base may be flagged to prohibit updates via the DBDUMP function. (See Appendix A of this manual and also the CICS/VS System Programmer's Guide (OS/VS).) This allows a backup copy to be made in another partition. Following this the data base may be returned to online operation via a master terminal OPEN function.

Example:

```
Enter:      CSMT DBD,DAT,FILEID=DBASE1
Receive:    DL/I DATABASE DBASE1 READY TO BE DUMPED
```

Close DL/I Data Base to Reads and Updates (CICS/OS/VS only)

Request format:

CSMT DBR,DAT,FILEID=xxxxxxx

The DBRECOVERY function causes an end of volume on the system log, and closes the DL/I data base to reads and updates. The IMS/VS data base recovery utility may then be run in another partition. Following this, the DL/I data base may be returned to online operation via a master terminal OPEN function.

Example:

Enter: CSMT DBR,DATBAS,FILEID=DBASE2
Receive: DL/I DATABASE DBASE2 READY FOR RECOVERY

Note: In order to perform a similar function under CICS/DOS/VS, the necessary DL/I calls will need to be made from the relevant user application programs.

TERMINALS

This section deals with the status and priority of terminals and CICS/VS intersystem communication (ISC) sessions, and with the acquisition and release of VTAM-supported terminals and CICS/VS ISC sessions.

The facilities available to the master terminal operator are:

- Inquire about the status of a terminal or a CICS/VS ISC session.
- Change the status of a terminal or a CICS/VS ISC session.

Only the service status of the IPL logical terminal of a binary synchronous System/7 can be changed.

Only the service status of a CICS/VS ISC session can be changed.

- Inquire about or change the priority of a terminal.

The priority must be in the range 0 through 255, where 255 represents the highest priority.

- Acquire or release a VTAM-supported terminal or a CICS/VS ISC session.

Inquire About Status of a Single Terminal (*)

Note: Also applies to a CICS/VS intersystem communication session.

Request format:

CSMT TERMNL,SIN,INQ,TERMID=xxxx

Example:

Enter: CSMT TERMNL,SIN,INQ,TERMID=L70A
Receive: STATUS IS
IN SERVICE
TRANSACTION
AUTOPAGE
CONNECTED VTAM (if VTAM-supported terminal)

Note: In a CICS/VS intersystem communication session, xxxx, in TERMID=xxxx, is an identifier specified in either the TRMIDNT operand of the DFHTCT TYPE=TERMINAL macro instruction or the SYSIDNT operand of the DFHTCT TYPE=ISLINK macro instruction. If xxxx has been specified by TRMIDNT, it identifies a terminal in the local system. If xxxx has been specified by SYSIDNT, it identifies a linked remote system, and inquiry can only reveal the service status (terminal status and paging status do not apply to a whole system). For further details of the macro, see the CICS/VS System Programmer's Reference Manual.

Change Processing Status of Terminals Using Single or List (*)

Request format:

CSMT TERMNL,{SIN|LIS},{TRNACT|REC|TRNCV|INP|AUTO|PAG},
TERMID=xxxx[,...]

Note:

1. Only TRNACT or TRNCV permitted for ELS users.
2. IBM 3270 devices cannot have INPUT status.

Examples:

Enter: CSMT TERMNL,SIN,AUTOPG,TERMID=L70D
Receive: STATUS IS
IN SERVICE
TRANSCIVE
AUTOPAGE
CONNECTED VTAM (if VTAM-supported terminal)

Enter: CSMT TERMNL,LIST,TRNCV,TERMID=TRMA,TRMB,TRMC
Receive: TERMINAL IDS
STATUS IS CHANGED

Change Service Status of Terminals Using Single, List, Class,
or All (*)

Request format:

CSMT TERMNL, {SIN|LIS|CLA|ALL}, {INSRV|OUT}, {DSPLY
(3) (7) (4)}

SUS|TRMNAT|INT}, {TERMID=xxxx[,...]|CLASID=xx}
(1) (6) (5) (2)

(the parenthesized numbers refer to the notes that follow)

Notes:

1. Choose one when OUTSRV is requested only. INT is used with SINGLE only.
2. CLASID is used when CLASS is entered. TERMID is used when SINGLE or LIST is entered. Neither is used with ALL.
3. When a master terminal operator puts a single terminal OUT OF SERVICE, he has four options for servicing any task that may be attached to that terminal: SUSPEND, INTERCEPT, TERMINATE, or DISPLAY the task. If he elects to suspend (SUS) the task, the task remains attached to the operator terminal and may be completed when that terminal is returned to an IN SERVICE status.
4. DSPLY is used when a single terminal is put out of service. It causes the active transaction identification to be displayed.
5. If the master terminal operator intercepts (INT) the task, the transaction is attached to the master terminal for completion and the operator terminal is placed OUT OF SERVICE.
6. If the master terminal operator terminates (TRMNAT) the terminal is placed OUT OF SERVICE and the transaction will abnormally terminate.
7. Only SIN, LIS or ALL are permitted for Entry Level System users.

Examples:

Enter: CSMT TERMNL,SIN,INSRV,TERMID=L70B
Receive: STATUS IS
IN SERVICE
TRANSCIVE
PAGE

Enter: CSMT TERMNL,LIS,INSRV,TERMID=TM01,ABCD
Receive: TERMINAL IDS
STATUS IS CHANGED

Enter: CSMT TRMNL,CLA,OUT,TRMNAT,CLASID=02
Receive: TERMINAL IDS
STATUS IS CHANGED
5 TASKS WERE ACTIVE
5 TASKS WERE TERMINATED

Enter: CSMT TERMNL,ALL,INSRV
Receive: TERMINAL IDS
STATUS IS CHANGED

Enter: CSMT TERMNL,SIN,OUTSRV,DSPLY,TRMNAT,TERMID=L70C
Receive: STATUS IS
OUT OF SERVICE
TRANSCIVE
PAGE
TRANSACTION ID IS CSSN
TASK WAS MARKED FOR TERMINATE

Change Service Status of Terminals or Links used in CICS/VS Intersystem Communication

Request format:

CSMT TERMNL,SIN,{INSRV|OUTSRV},TERMID=xxxx[,...]

Note: In a CICS/VS intersystem communication session, xxxx in TERMID=xxxx is the identifier specified in the TRMIDNT operand of the DFHTCT TYPE=ISLINK macro. If either the session (TRMIDNT) or the system (SYSIDNT) is put out of service, no conversation can take place until service is resumed. The service status of the system can be changed by specifying the name given in the SYSIDNT operand of DFHTCT TYPE=ISLINK as the xxxx value. For further details of the DFHTCT TYPE=ISLINK macro instruction, see the CICS/VS System Programmer's Reference Manual.

Inquire About, or Set, the Priority of a Single Terminal

Request format:

CSMT PRI,TERMNL,SIN,{INQ|n},TERMID=xxxx

Examples:

Enter: CSMT PRIOR,TERMNL,SIN,INQ,TERMID=TRMI
Receive: THE TERMINAL PRIORITY IS 205

Enter: CSMT PRI,TERMNL,SIN,200,TERMID=TRMI
Receive: TERMINAL PRIORITY IS CHANGED TO 200 FROM 205

Set the Priority of a List of Terminals

Request format:

CSMT PRI,TERMNL,LIS,n,TERMID=xxxx[,...]

Example:

Enter: CSMT PRI,TERMNL,LIS,200,TERMID=XXXX,YYYY
Receive: THE NEW TERMINAL PRIORITY IS 200
HIGHEST OLD PRIORITY WAS 205
LOWEST OLD PRIORITY WAS 0

Set the Priority of a Class of Terminals

Request format:

CSMT PRI,TERMNL,CLA,n,CLASID=xx

Set the Priority of All Terminals

Request format:

CSMT PRI,TERMNL,ALL,n

Acquire a VTAM-supported Terminal with Message Resynchronization

Request format:

CSMT TERMNL,SIN,ACQ,TERMID=xxxx

A VTAM-supported terminal (or, for intersystem communication, another CICS/VS system), must be connected to VTAM before it can be used by CICS/VS. The ACQUIRE (ACQ) keyword provides the ability to request connection for:

1. A terminal lost because of some failure, or
2. A terminal not capable of establishing connection in any other way.
3. Another CICS/VS system to be connected through VTAM.
4. For intersystem communication, ACQ and REL can refer only to specific, named sessions between systems, and not to the remote system itself. That is, TERMID=xxxx applies to the TRMIDNT name of the individual session rather than its associated SYSIDNT name.
5. Intersystem communication cannot begin until the terminal entry representing the session is put into (or brought up in) IN SERVICE status in both systems, and has been successfully acquired by means of the ACQ command. If a request is issued and both ends of the link are IN SERVICE but no session exists, the session will be acquired automatically.

| Acquiring a terminal does not alter its service status. Also, the
| response to an ACQUIRE request does not say whether the terminal has
| been acquired. The operator should perform an inquiry to determine
| whether a terminal has been acquired.

Example:

Enter: CSMT TERMNL,SIN,ACQ,TERMID=WS12
Receive: STATUS IS
IN SERVICE
TRANSACTION
PAGE

Acquire a VTAM-supported Terminal without Message Resynchronization

Request format:

CSMT TERMNL,SIN,ACQ,COL,TERMID=xxxx

When connecting a terminal as shown in the preceding example, CICS/VS attempts to resynchronize the message flow (for a transaction) occurring when the terminal was disconnected. Resynchronization indicators and a message log are maintained for this purpose. When a connection is lost

and then reestablished (by the emergency restart facility), CICS/VS uses the indicators and message log to resynchronize the message flow and retransmit lost messages. By using the keyword COL (COLD), message resynchronization can be avoided.

For terminals that do not support message resynchronization, if ACQ is specified, COLD is assumed, whether specified or not.

Example:

```
Enter:      CSMT TERMNL,SIN,ACQ,COL,TERMID=WS12
Receive:    STATUS IS
            IN SERVICE
            TRANSACTION
            PAGE
```

Release a VTAM-supported Terminal

Request format:

```
CSMT TERMNL,SIN,REL,TERMID=xxxx
```

The RELEASE (REL) keyword provides the ability to disconnect a terminal from VTAM. Releasing a terminal does not change its service status. The keyword is also used in CICS/VS intersystem communication, to disconnect a CICS/VS system, connected through VTAM.

Examples:

```
Enter:      CSMT TERMNL,SIN,REL,TERMID=WS12
Receive:    STATUS IS
            IN SERVICE
            TRANSACTION
            PAGE
```

REMOTE CONTROL UNITS AND LINES

The section deals with the service status of control units and lines; it also discusses the polling of BTAM devices.

The function of inquiring about or changing the service status of a remote control unit can be used to place all the terminals associated with that particular control unit to either out of service or in service status. Such a use is only valid for 2260, 3270, and 2980 cluster controllers.

Note: In the commands relating to lines, "n" represents a relative line number and is required for pooled lines only; for further details of pooled lines see the CICS/VS System Programmer's Reference Manual. It does not apply for CICS/VS intersystem communication.

Inquire About the Status of a Control Unit (*)

Request format:

CSMT {CONT|CNTRL},INQ,TERMID=xxxx

Example:

Enter: CSMT CNTRL,INQ,TERMID=NNNN
Receive: CONTROL UNIT
OUT OF SERVICE

Put a Control Unit in Service (*)

Request format:

CSMT {CONT|CNTRL},{IN|INSRV},TERMID=xxxx

This function can be used to place all the terminals associated with a particular control unit in in-service status.

Example:

Enter: CSMT CNTRL,INSRV,TERMID=NNNN
Receive: CONTROL UNIT
IN SERVICE

Put a Control Unit Out of Service and Suspend Task

This function can be used to place all the terminals associated with a particular control unit in out-of-service status.

Request format:

CSMT {CONT|CNTRL},OUT,SUS,TERMID=xxxx

Put a Control Unit Out of Service and Terminate Task (*)

Request format:

CSMT {CONT|CNTRL},OUT,TRMNAF,TERMID=xxxx

This function can be used to place all the terminals associated with a particular control unit in out-of-service status.

Inquire About the Status of a Line (*)

Request format:

CSMT LIN,n,INQ,TERMID=xxxx

Example:

Enter: CSMT LIN,INQ,TERMID=XXYY
Receive: LINE
OUT OF SERVICE

Note: Line status inquiries cannot be requested for CICS/VS-supported terminals controlled by VTAM. If such a request is made, CICS/VS indicates that it is a VTAM-supported terminal and the status of the terminal is returned rather than that of the line.

Put a Line In Service (*)

Request format:

CSMT LIN,{IN|INSRV},n,TERMID=xxxx

Example:

Enter: CSMT LINE,INSRV,TERMID=ZZXX
Receive: LINE
IN SERVICE

Put a Line Out of Service and Suspend Task

Request format:

CSMT LIN,OUT,SUS,n,TERMID=xxxx

Put a Line Out of Service and Terminate Task (*)

Request format:

CSMT LIN,OUT,n,TRMNAT,TERMID=xxxx

Negative Poll Delay of a Line

Request format:

CSMT NEG,{INQ|n},TERMID=xxxx

The negative poll delay function allows the user of CICS/VS to delay the polling of BTAM devices on a line when negative responses are detected. This facility allows some control over the processing unit overhead required by terminal control to service negative poll interrupts, and also over the amount of virtual storage paging. It should be balanced to reduce the processor overhead caused by nonproductive polling, and yet still maintain sufficient CICS/VS activity at times of low terminal activity. This balance reduces the amount of the CICS/VS nucleus paged out by concurrent batch partitions/regions. (See "System Partition/Region Exit Time Interval.") The request must be made as a value in milliseconds and within a range 0 to 20000. Once a terminal on that line enters into a conversational-mode transaction, that terminal receives a full poll until the transaction is completed. The actual value is rounded to a multiple of 80 for internal use.

Examples:

Enter: CSMT NEG,INQ,TERMID=nnnn
Receive: NEGATIVE POLL DELAY IS 960

Enter: CSMT NEG,1000,TERMID=nnnn
Receive: NEGATIVE POLL DELAY IS CHANGED TO 1040 FROM 960

Note: Negative poll delay is not applicable to local, switched lines, or VTAM.

TRACE AND AUXILIARY TRACE

The section deals with the control of trace and auxiliary trace.

Turn Trace On/Off (*)

Request format:

CSMT TRACE,{ON|OFF}

The trace function is used in conjunction with ON or OFF to start or stop logging entries in the trace table. Inquiries about current status of trace (on or off) are not honored.

Example:

Enter: CSMT TRACE,ON
Receive: TRACE FACILITY IS NOW ENABLED

Turn Auxiliary Trace On/Off (*)

Request format:

CSMT ATR,{ON|OFF}

Notes:

1. In addition to enabling auxiliary trace, ATR ON will, unless the file was previously opened, cause opening of the Auxiliary Trace file.
2. The in-core trace must be switched on before the auxiliary trace, or no auxiliary trace entries will be recorded, even though the message "AUXILIARY TRACE FUNCTION ACTIVATED" is displayed.

The auxiliary trace table, written on a SAM data set, may be used as a problem determination and performance tuning aid. The format is: time of day down to microseconds, in 128 microsecond intervals, followed by the standard CICS/VS trace entry. In addition, new trace entries are available to supplement the information in the standard CICS/VS trace. These are:

- Task dispatch (each time a task is dispatched)
- Task created (indicates that a TCA has been built and a task number assigned)
- Task terminate (indicates release of a TCA)
- Task suspend (every time a task is suspended)
- System wait (immediately before CICS/VS issues a wait on the interval time)

System resume (immediately after CICS/VS issues a wait on the interval time)

The trace ID for these entries is 'D0'.

Examples:

To activate the auxiliary trace function:

Enter: CSMT ATRACE,ON

If the auxiliary trace is successfully activated:

Receive: AUXILIARY TRACE FUNCTION ACTIVATED.

If the auxiliary trace option was not generated in the Trace Control Program, DFHSG PROGRAM=TRP:

Receive: AUXILIARY TRACE NOT GENERATED.

If the Trace Control Program was not able to open the auxiliary trace data set for any reason; for example, no DD card, or device not assigned:

Receive: AUXILIARY TRACE FILE FAILED TO OPEN.

To terminate the auxiliary trace:

Enter: CSMT ATRACE,OFF

Receive: AUXILIARY TRACE FUNCTION DEACTIVATED.

Close Auxiliary Trace File (*)

Request format:

CSMT ATR,ATC

Example:

Enter: CSMT ATR,ATC

If no errors are encountered:

Receive: AUXILIARY TRACE FILE CLOSED.

If the file had not been opened:

Receive: AUXILIARY TRACE FILE WAS NOT OPEN

Turn Program Isolation Trace On/Off (CICS/OS/VS Only)

Request format:

CSMT PTR,{ON|OFF}

The command is applicable only in a program isolation (PI) environment. Execution of the ON/OFF command requires, as a resource, one of the DL/I threads specified in the DLTHRED (DFHSIT or override) option. For further details of the DLTHRED option, see the CICS/VS System Programmer's Reference Manual. If no threads are available at the time the command is issued, CSMT will wait until a thread is free.

The purpose of the PI trace facility is to write IMS/VS program isolation trace records to the CICS/VS System log. The trace records indicate the enqueueing activity taking place for program isolation. When generation of PI trace records is no longer required, the CSMT PTR,OFF command should be used.

The trace records on the system log may be printed using an IMS/VS utility program. For further details of Log Data Formatting Utilities, see the IMS/VS Utilities Reference Manual, (SH20-9029).

VTAM

This section describes the opening and closing of the VTAM ACB (access method control block).

Open VTAM ACB (*)

Request format:

CSMT OPEN,VTAM

The facility enables the terminal operator to open the VTAM ACB in the event that CICS/VS was initiated before VTAM and the operator has replied "GO" to messages DFH1572 and DFH1588 at start-up time. When an abnormal close has disconnected CICS/VS and VTAM, the OPEN command can be used to reopen the ACB.

Example:

Enter: CSMT OPEN,VTAM
Receive: VTAM ACB NOW OPEN

Notes: If the OPEN command is rejected, a message will be sent to the master terminal. The message will take either of two forms:

1. A message indicating that the ACB is already open.
2. A message indicating that the ACB could not be opened, and giving the VTAM return code.

Dynamic Close of VTAM ACB (Orderly)

Request format:

CSMT CLOSE,VTAM

An orderly close allows active CICS/VS-VTAM transactions to terminate normally. A session is closed by the CLSDST macro after the current transaction has terminated.

Dynamic Close of VTAM ACB (Immediate)

Request format:

CSMT CLOSE,VTAM,IMM

An immediate close abnormally terminates active CICS/VS-VTAM transactions, and closes all VTAM sessions. The CLOSE ACB macro is issued when no sessions remain active.

Notes:

1. The system response to a CSMT CLOSE request is either a "request accepted" message or an error message rejecting the request.
The possible error conditions are:
 - a. No VTAM support has been generated;
 - b. The ACB is already closed;
 - c. A dynamic close of equal or greater severity is already in progress.
2. The message "DFH2316 - VTAM ACB IS CLOSED" is sent to the console operator.
3. The master terminal operator must use the request format exactly as shown above to achieve an immediate close. Any other request sequence will result in an orderly close.

CICS/VS SHUTDOWN

The section deals with various options open to the master terminal operator when shutting down CICS/VS.

When termination is initiated, the following message is displayed on the system console and at the master terminal:

DFH1701 - C.I.C.S. IS BEING TERMINATED

If keypointing is being used, the following message is displayed on the system console:

DFH1796 - KEYPOINT SUCCESSFUL

If a dump is requested, the following message is displayed on the system console when termination is complete:

DFH1798 - REQUESTED DUMP IN PROGRESS

When termination is complete, the following message is displayed on the system console:

DFH1799 - TERMINATION OF CICS/VS IS COMPLETE

Note: If a shutdown request is not entered in a single line, the operator may nullify his request by responding CANCEL. However, once a shutdown is initiated it may not be canceled.

Shut Down CICS/VS Immediately (*)

Request format:

CSMT SHU,YES

This function shuts down the system without regard to any active tasks that may exist. It will not, however, cause automatic closure of data base data sets.

Note: If the user of the CICS/DOS/VS system requests immediate termination of CICS/VS while active transactions are communicating with terminals, unpredictable results could occur; that is, active terminals could receive input/output data from other active terminals within CICS/VS.

Shut Down CICS/VS Immediately with Dump (*)

Request format:

CSMT SHU,YES,DUMP

If DUMP is specified, a dynamic storage dump is printed upon completion of the termination process.

Shut Down CICS/VS, but Let Tasks End (*)

Request format:

CSMT SHU,NO,,xx,yy

The function is used to shut down the system only after all currently active tasks have completed, and an orderly CLOSE of all active VTAM sessions has occurred. Transactions included in the transaction list table (XLT) can be initiated after this request is entered, until the system quiesces.

xx specifies the suffix of the transaction list table to be used for this shutdown. (Note, the XLT is not used if the CICS/DOS/VS Entry Level System option is selected. Therefore, in such a case this suffix is not valid.)

yy specifies the suffix of the program list table (PLT) to be used for this shutdown. (Note, the PLT is not used if the CICS/DOS/VS Entry Level System option is selected. Therefore, in such a case this suffix is not valid.)

Notes:

1. NO indicates that the shutdown is not immediate.
2. The default keyword following NO is NODUMP.

If xx or yy is omitted, the suffixes specified in the system initialization table (SIT) will be used. (For a discussion of the tables (SIT, XLT and PLT), see the CICS/VS System Programmer's Reference Manual.)

Shut Down CICS/VS, but Let Tasks End and Dump (*)

Request format:

CSMT SHU,NO,DUMP,xx,yy

Note: xx and yy are explained in the preceding Notes.

CICS/VS FORMATTED DUMP

Produce a Dump and Continue Execution (*)

Request format:

CSMT SNAP [,PARTN][,FORMAT]

The request CSMT SNAP only, depending on what was specified at system initialization in the SIT will produce either no dump, or a partition dump, that is, a PDUMP (VSE), or a SNAP(OS/VS). Furthermore, again depending on specification at system initialization, the partition dump may be followed by a formatted dump.

If the PARTN and/or FORMAT options are specified in the CSMT SNAP request, dump production if such was specified at system initialization will be ignored. Instead, partition and/or formatted dumps will be produced as indicated by the options in the request. Execution will continue after the request has been honored.

Note: The use of CSMT SNAP will prevent any tasks from being dispatched, and terminal operators will experience long pauses.

Chapter 6. Supervisory Terminal Transaction (CSST)

Transaction Request Formats

This chapter shows how to request the various services provided by the CSST transaction.

| **Note:** The reader is reminded that the enhanced supervisory terminal transaction (CEST) is described at the end of Chapter 4.

TERMINALS

This section deals with the status and priorities of terminals under the control of the supervisory terminal operator.

The following is a general example of modifying terminal service status as performed by the supervisory terminal operator:

```
Enter:      CSST TERMNL,LIST,INSRV,SUPRID=01
Receive:    ENTER LIST OF TERMINAL IDS
Enter:      TERMID=FVAR,ODAN,1592
Receive:    TERMINAL IDS
            STATUS IS CHANGED
            TIME=10.20.04  DATE=10/01/73
```

Putting a Single Terminal In or Out of Service

Request format:

CSST TERMNL,SIN,{INSRV|OUT},{DSPLY|SUS|TRMNAT|INT},TERMID=xxxx

When a supervisory terminal operator puts a single terminal OUT OF SERVICE, he has four options for servicing any task that may be attached to that terminal: Suspend, Intercept, Terminate, or Display the task.

If the supervisory terminal operator elects to suspend (SUSPEND option) the task, the task remains attached to the operator terminal and may be completed when that terminal is returned to an IN SERVICE status. (However, the potential effect of this action should be considered, because valuable storage resources may be tied up by a suspended task.)

If the supervisory terminal operator intercepts (INTERCEPT option) the task, the transaction is attached to the supervisory terminal for completion and the operator terminal is placed OUT OF SERVICE.

If the supervisory terminal operator terminates (TERMINATE option) the task, the transaction is abnormally terminated and the terminal is placed OUT OF SERVICE.

When the supervisory terminal operator displays (DISPLAY option) the task, the task is suspended pending further action and the transaction identification code is displayed on the supervisory terminal. At this point, the supervisory terminal operator may select one of the other three options (SUSPEND, INTERCEPT, or TERMINATE) to complete the servicing of the task.

Putting more than one Terminal In or Out of Service

Request format:

```
CSST TERMNL,{LIS|CLA|ALL},{INSRV|OUT},{SUS|TRMNAT},
{TERMID=xxxx[,...]|CLASID=xx}
```

When a supervisory terminal operator puts, all terminals, a list of terminals, or a class of terminals OUT OF SERVICE while a task is attached, there are two options for servicing the transaction: Either SUSPEND ALL active transactions or alternatively TERMINATE ALL active transactions.

The identification code for each terminal affected, however, must be contained in the terminal control table (TCT).

For example:

To change the service status of terminals for a class of terminals:

```
Enter:      CSST TERMNL,CLASS,OUT,TRMNAT,SUPRID=02
Receive:    ENTER CLASS ID
Enter:      CLASID=11
Receive:    TERMINAL IDS
            STATUS IS CHANGED
            2 TASKS WERE ACTIVE
            2 TASKS WERE TERMINATED
            TIME=10.05.50  DATE=10/01/73
```

TLR02 is assumed to contain all terminals found in TLT11.

Inquiring about Terminal Status of a Single Terminal

Request format:

```
CSST TERMNL,SIN,INQ,TERMID=xxxx
```

To inquire about the processing or service status of a single terminal, the terminal must be in the TLT that has the same suffix as supplied by the supervisor identification keyword (SUPRID).

Example:

```
Enter:      CSST TERMNL,SIN,INQ,TERMID=TM01
Receive:    ENTER SUPERVISOR ID
```

```

Enter:      SUPRID=01
Receive:    STATUS IS
            IN SERVICE
            TRANSCEIVE
            PAGE
            CONNECTED VTAM (if VTAM-supported terminal)
            TIME=10.05.73  DATE=10/01/73

```

Note: TLT01 is assumed to contain terminal identifier TM01.

Change Processing Status of a Single Terminal

Request format:

```
CSST TERMNL,SIN,{TRNACT|REC|RNCV|INP|AUTO|PAG},TERMINID=xxxx
```

Change Processing Status of a List, Class, or All Supervised Terminals

Request format:

```
CSST TERMNL,{LIS|CLA|ALL},{TRNACT|REC|RNCV|INP|AUTO|PAG},
{TERMINID=xxxx[,...]|CLASID=xx}
```

Example:

Change the processing status of a list of terminals found in the TLT. Only the terminals which are in the list specified by TERMINID and which are also in the TLT specified by SUPRID will be changed. Others are ignored.

```

Enter:      CSST TERMNL,LIS,REC,TERMINID=TM01,TM02
Receive:    ENTER SUPERVISOR ID
Enter:      SUPRID=22
Receive:    TERMINAL IDS
            STATUS IS CHANGED
            TIME=10.05.50  DATE=10/01/73

```

TLT22 is assumed to contain terminal identifiers TM01 and TM02.

Inquiring about Priority of a Single Terminal

Request format:

CSST PRI,TERMNL,INQ,SIN,TERMID=xxxx

Example:

Enter: CSST PRI,TERMNL,INQ,SIN,TERMID=TM11
Receive: ENTER SUPERVISOR ID
Enter: SUPRID=1A
Receive: THE TERMINAL PRIORITY IS 150
TIME=10.05.50 DATE=10/01/73

Changing the Priority of Terminals in the TLT

These terminals can be defined as:

- a. A single terminal
- b. A list of terminals
- c. A class of terminals
- d. All terminals in the TLT

Request format:

CSST PRI,TERMNL,{SIN|LIS|CLA|ALL},TERMID=xxxx

Example:

To change terminal priority for a list of terminals

Enter: CSST PRI,TERMNL,255,LIS,SUPRID=02
Receive: ENTER LIST OF TERMINAL IDS
Enter: TERMID=TRM3,TRM5,TRM9
Receive: THE NEW TERMINAL PRIORITY IS 255
HIGHEST OLD PRIORITY WAS 150
LOWEST OLD PRIORITY WAS 0
TIME=10.05.50 DATE=10/01/73

CONTROL UNITS AND LINES

When a supervisory terminal operator puts a line or control unit out of service while a task is attached, there are two options open: Either SUSPEND all active transactions or alternatively, TERMINATE all active transactions.

Inquiring about the Status of a Line

Request format:

```
CSST LIN,INQ,TERMID=xxxx
```

Changing the Status of a Line

Request format:

```
CSST LIN,{INSRV|OUT},TERMID=xxxx
```

Example:

To change line status:

Example 1:

```
Enter: CSST LIN,INSRV,TERMID=ABCD
Receive: ENTER SUPERVISOR ID
Enter: SUPRID=20
Receive: LINE
IN SERVICE
TIME=10.05.50 DATE=10/01/73
```

Example 2:

```
Enter: CSST LIN,OUT,TRMNAT,TERMID=TER 1
Receive: ENTER SUPERVISOR ID
Enter: SUPRID=21
Receive: LINE
OUT OF SERVICE
6 TASKS WERE ACTIVE
6 TASKS WERE TERMINATED
TIME=10.20.00 DATE=10/01/73
```

To put the line IN SERVICE, only the single TERMID specified must be present in the TLT. A control unit request operates in the same manner.

Notes:

1. A supervisory terminal operator cannot put a line OUT OF SERVICE unless all terminals on the line are in the appropriate TLT. In this example, the terminals must be present in TLT21.

2. Where there are tasks active on the line, the supervisor has the option of suspending or terminating them all when putting a line out of service.

Inquiring about the Status of a Control Unit

Request format:

CSST CNTRL,INQ,TERMID=xxxx

The terminal used must be one attached to the control unit.

Changing the Status of a Control Unit

Request format:

CSST CNTRL,{INSRV|OUT},TERMID=xxxx

Example:

To change the status of a control unit:

```
Enter:      CSST CNTRL,INSRV,TERMID=TM01
Receive:    ENTER SUPERVISOR ID
Enter:      SUPRID=02
Receive:    CONTROL UNIT
            IN SERVICE
            TIME=10.05.50  DATE=10/01/73
```

TASKS

List the Active and Suspended Tasks in the System

Request format:

CSST TAS

Example:

```
Enter:      CSST TAS
Receive:    TASKNO  TRANID  ACT/SUSP  FAC.NAME  TYPE
            00001   INTM    SUSP       TER1      TASK
            00010   TRN2    SUSP       TER1      TERM
            00015   CSST    ACT        LP1       TERM
```

TIME=10/05/50 DATE=10/01/73

Certain tasks have no valid task number (such as journal control) and will not be listed.

Note: When many tasks are in the system, the above information may be long enough to exceed a 3270 screen size, and some of the data will be overlaid.

Terminate a Task using Terminal Identification

Request format:

CSST TRMNAT,TERMID=xxxx

Example:

```
Enter:      CSST TRMNAT,TERMID=L70R
Receive:    ENTER SUPERVISOR ID
Enter:      SUPRID=R1
Receive:    TASK WAS TERMINATED
            TIME=10.05.50  DATE=10/01/73
```

Dealing with Tasks Attached to a Terminal Going Out of Service

The supervisory terminal operator can by using the relevant terminal identification and the appropriate keyword, SUSPEND, INTERCEPT, TERMINATE, or DISPLAY a task attached to a single terminal which is to be put out of service.

For example:

To suspend a task attached to a single terminal which is being put out of service:

```
Enter:      CSST TERMNL,SIN,OUT,SUS,TERMID=T1
Receive:    ENTER SUPERVISOR ID
Enter:      SUPRID=03
Receive:    STATUS IS
            OUT OF SERVICE
            TRANSACTION
            PAGE
            TASK WAS SUSPENDED
            TIME=10.05.50  DATE=10/01/73
```

Dealing with Tasks Attached to Terminals Listed in TLT, which
are Going Out of Service

Such tasks may be suspended or terminated. The terminals may be defined as:

- a. A line
- b. A control unit
- c. A list of terminals
- d. A class of terminals
- e. All terminals (in the supervisor or class TLT)

For example:

To terminate tasks attached to a class of terminals being put out of service:

```
Enter:      CSST OUT,TERMNL,TRMNAT,CLASS,CLASID=01
Receive:    ENTER SUPERVISOR ID
Enter:      SUPRID=01
Receive:    TERMINAL IDS
            STATUS IS CHANGED
            2 TASKS WERE ACTIVE
            2 TASKS WERE TERMINATED
            TIME=10.05.50  DATE=10/01/73
```


Chapter 7. Message Switching

The CICS/VS message switching facility allows messages to be transmitted from a terminal to one or more destinations. For example, an operator can send a message to:

- Another terminal
- Another terminal, but only when a specified operator is signed on at that terminal
- Another terminal only when the operator signed on at that terminal is in a specified operator class
- Another operator (CICS/VS will locate the operator, if currently signed on, and send the message to that operator's terminal)
- All terminals
- All terminals with operators signed on in specified classes

The operator can specify that the message is to be transmitted at some future time. If the message cannot be transmitted, the sending terminal, or another, can be notified.

Multiple destinations (combinations of the above) are allowed. In addition, standard routing lists can be provided by means of the terminal list table (TLT), which can include terminal and/or operator identifications. Multiple routing lists may be specified at the time the message is entered, and individual destinations may be deleted from, or added to, the lists at this time.

The CICS/VS service function for message switching is provided by a service program invoked by a user-defined transaction identification code, which must have been specified in the program control table (PCT). The code can be CMSG or alternatively any suitable user-defined four-character transaction identification code. CMSG is the transaction identification assumed for the ensuing description of the message switching facility.

The CICS/VS message switching facility can be extended to include predefined messages and even complete message switching transaction input formats. For further details, see the CICS/VS System/Application Design Guide.

Every message destination, and the terminal from which the message switching transaction is initiated, must be of a terminal type supported by BMS.

Various examples of message switching are given at the end of this chapter.

Using the Message Switching Transaction

To send a message to another terminal or terminals, the operator enters the transaction identification followed by the applicable operands.

Full details of the operands are given later in this chapter under "Message Switching Operands".

Request format:

```
CMSG [MSG=]'message'
      [,ROUTE= {[termid][ /opid ]}[ ,... ]|ALL|
          .termlist[ ,... ][ ,t[termid][ /opid ][ ,... ]]}
      [,OPCLASS=n1[ ,... ]]}
      [,TIME= Value1]
      [,DATE= Value2]
      [,ERRTERM={termid|ORIG} ]
      [,OPCLASS= n1[ ,... ]]}
      [,ID= title ]
      [,HEADING={YES|NO}
      [,PROTECT={YES|NO|prefix} ]
      ,{SEND|CANCEL}
```

Every message switching transaction includes a transaction identifier, the message text, a destination (ROUTE and/or OPCLASS), and ends with a SEND or CANCEL operand. When a SEND operand is processed, the message is transmitted, and the response MESSAGE HAS BEEN ROUTED is sent to the transmitting terminal.

Every keyword, except CANCEL, can be abbreviated to a single character.

One or more operands may be specified in one input. Consecutive operands in the same input must be separated by a comma.

The last operand in one input is detected by a following space (any data following in the same input is ignored) or an end of data condition.

For display devices such as 3270, a single input is constituted by operating the ENTER key. For hard-copy terminals such as the 2741, a single input is in fact a line of input and is ended by a carriage return.

In order to maintain the "conversation" with a terminal, the status of all inputs, except the final input which includes the SEND operand, is saved in one temporary storage record. For details of the temporary storage records, see the appropriate CICS/VS System Programmer's Guide (VSE or OS/VS).

The operands, except SEND and CANCEL, may be entered in any order after CMSG and one or more spaces.

A message switching transaction will remain conversational until ended. This means that all inputs (even other transaction identifications) will be passed to the message switching program. A message switching transaction (possibly involving multiple inputs) must be ended before a different transaction may be started.

CANCELING A MESSAGE

The current message switching transaction can be canceled by entering:

- CANCEL as the last six characters of the input. The operator is notified of the termination by the message: TERMINATED BY OPERATOR.
- CMSG as the first four characters followed by end of data which causes a NO INPUT- REENTER message.
- CMSGx as the first five characters, where x is any character other than a space or a "C", that causes a SPACE MUST FOLLOW TRANSID message.
- CMSG as the first four characters followed by space and end of data which starts a new message switching transaction and causes the display of a CONTINUE INPUT message.

The first three examples above terminate the conversational mode with the operator and allow other transactions to be entered.

- A normal completion of a message switching transaction, as reported to the terminal, signifies the message has been successfully routed to its destination(s) but does not reflect any delivery status.

| The input can contain backspace characters.

| New line characters (or carriage return on a hard-copy terminal)
| which are not part of the message are changed to commas, unless
| they appear at the beginning or end of the input. Such leading or
| trailing characters are deleted. Thus, NL characters can be used
| as operand separators, instead of a commas. For example, on a
| display device the operator could enter:

```
CMSG R=(T001,T002)#
T=1500#
'THE TIME IS 3:00 P.M.'#
S@
```

In the above example, '#' represents New Line (NL) and '@' represents enter key.

MESSAGE SWITCHING CONTINUATION

The message switching transaction appears to be conversational to the terminal operator. Internally, a new task is created to process each message switching input. If a task requires more information to complete the transaction, the current status of the transaction is saved in temporary storage, a response is sent to the terminal, and the task terminates with a requirement that the next task started be a message switching task (DFHPC TYPE=RETURN,TRANSID=code); for further details, see the CICS/VS Application Programmer's Reference Manual (Macro Level). The saving of status replaces any previously saved status for any message switching transaction from that terminal.

If a message switching transaction completes ('MESSAGE HAS BEEN ROUTED') or is canceled by the operator, a response is sent to the terminal, the status of the transaction is not saved, and the task terminates with no transaction restart specified.

The saved status is always used by a message switching task to continue a conversational input from a terminal. The terminal operator can force recall of the status saved by entering the transaction identification code immediately followed by a "C" (for example:

CMSGC). Additional input may also be included, but must follow the "C" with no intervening spaces. This can be useful for the following reasons: An operator can enter CANCEL to bypass errors in the current input and yet not allow conversation to continue. The operator can then enter the transaction identification followed by a "C" (CMSGC) and then enter "EOD", which will put the terminal in the conversation that prevailed at the time of the most recent input that has not been canceled or has not resulted in a message being routed. At this point an operand could also be added if desired, for example: CMSGCT=1030. (Note that there are no spaces between the TRANSID, the "C", or the following data.)

For example, the following input can be entered:

```

Enter:      CMSG R=(T40,T41)
Receive:    R OK CONTINUE INPUT
Enter:      T=1500
Receive:    R T OK CONTINUE INPUT
Enter:      'THERE WILL BE .....AT THE
Receive:    R T OK CONTINUE MSG
Enter:      MAIN NIO;FOMH PM VS;OGPTMOS SBR CANCEL      (see Note)
Receive:    TERMINATED BY OPERATOR
Enter:      CMSGCMAIN BUILDING ON CALIFORNIA AVENUE
Receive:    R T OK CONTINUE MSG
Enter:      IN ROOM 407',S
Receive:    M R T S OK MESSAGE HAS BEEN ROUTED

```

Note: In the preceding example, the operator decided to cancel the line and reenter instead of trying to correct that input. This terminates the entire transaction. In order to save the previously entered input, the operator enters CMSGC to restart at the previously saved status point and continues the message entry.

- The terminal is free between a message switching response and the next input. If the terminal is in TRANSCEIVE status, an automatically initiated task can be started on the terminal before the operator can continue the message switching transaction. Upon completion of this new task, even if it required conversation with the operator, the message switching transaction is continued as if nothing had intervened. However, if the operator receives a response indicating that the intervening task has issued a DFHPC TYPE=RETURN,TRANSID macro instruction, the transaction ID followed by "C" must be entered in order to force continuation of the previous message switching transaction.

MESSAGE DELIVERY

A message is eligible for delivery to a destination if the following conditions are met:

- Delivery time has been reached
 - Terminal is in service
- and either
- The identification of the operator signed on matches the requested opid if specified in the ROUTE parameter
- or

- The class of the operator signed on matches any specified by the OPCLASS operand

The terminal status, which affects delivery of eligible messages, is defined by the TRMSTAT operand of the DFHTCT TYPE=TERMINAL macro instruction but can be changed by the CSMT, CSST, and CSOT transactions:

TRANSCIVE or RECEIVE	a message is automatically sent to the terminal when no transaction is attached to it.
TRANSACTION	the terminal operator must request message delivery by entering a paging command. (See "Basic Mapping Support (BMS) Terminal Paging Commands" in Chapter 2.)

A message is formed into one or more "pages", the size of which is predefined for a destination by the system programmer. The above discussion of terminal status determines the delivery of the first page of a message. Succeeding pages, if any, are sent according to the paging status of the destination as defined by the system programmer. Succeeding pages are handled as follows:

PAGE	must be requested by the operator through a paging command.
AUTOPAGE	the complete message is printed.

Terminal System Considerations

With the exception of any specific details relating to the ROUTE operand (see "Message Switching Operands"), all other information on the use of the following subsystems in Message Switching are given in the appropriate IBM subsystem guides, as listed in the Preface.

- 3600 Finance Communication System (VTAM)
- 3650 Retail System
- 3770 Data Communication System
- 3790 Communication System

3270 DISPLAY DEVICES

The responses to 3270 display devices are designed to fit on a single 40 character line of a Model 1 terminal. In order to provide more space for the message, the status indicators which precede the response will not have spaces between them as appear on non-3270 terminals.

Responses to the 3270 display devices will not erase what is displayed on the screen and will be displayed in the last 40 character positions of the line.

After a message switching transaction has been started, the operator may press the CLEAR key if it is desired to continue from an empty screen. A CLEAR/CANCEL OR CONT xxxxx message is displayed where xxxxx is either INPUT, ROUTE, or MSG. The transaction may be continued or, if the CLEAR key is pressed a second consecutive time, be canceled. A better method of erasing the screen is to press the Erase Input key, because this does not cause an interaction with the computer.

Since positions on the screen that are not keyed are not received, it is possible to position and display the data on the screen in varied ways. For example, each operand may start on a new line of the display screen. A comma must be included some place between consecutive operands. Also, if within the message text it is desired to start a new line, the field mark character should be entered to indicate the end of the current line. All field mark characters within a message (including the first character of the message) are interpreted as NL characters (there is no corresponding key on 3270 display devices) and cause proper positioning of the message on all other terminals, 3270 or otherwise.

3767 COMMUNICATION TERMINAL

The keyboard/printer unit of the 3767 is eligible for entering and receiving messages.

SEQUENTIAL (BSAM) TERMINAL

The CMSG message switching facility remains effectively conversational until a message switching transaction is completed or canceled. Variable conditions requiring a response, such as operators not signed on, can be handled easily from an interactive terminal. These conditions, however, cannot always be anticipated, and the message switching task continues reading input and issuing error messages until a valid response is received. It is possible that an entire sequential input stream could be consumed in such a process. It is therefore suggested that a CMSG CANCEL record appear in the sequential input following each message switching transaction which could possibly require an unanticipated reply. This is strongly recommended following the final message switching transaction.

Message Switching Operands

- Except for CANCEL, the first letter of each keyword may be specified instead of the entire keyword, for example, (R for ROUTE, S for SEND). In addition, for the HEADING operand, H or HEADING is accepted in lieu of HEADING=YES and, for the PROTECT operand, P or PROTECT is accepted in lieu of PROTECT=YES.

MSG

provides the text of the message to be sent. The keyword and the equal sign are optional. The message must be enclosed within single quote characters. A quote to be included as part of the message must be represented by a pair of quote characters. The message may be continued across multiple consecutive inputs.

A single quote character is required to end the message text. If the ending quote is omitted, the entire input is treated as part of the message and a request to continue the message is sent to the terminal. The entire transaction may be canceled, or alternatively, operands previously entered for this transaction may be saved by entering a single quote character followed by a comma to terminate the MSG operand. The correct message can then be reentered and the previous incorrect message is ignored.

A single quote character entered at the end of data in a MSG operand can signify:

end of MSG operand, or

the first of a pair of single quote characters indicating one is to be included as part of the message.

In this situation, the response to the terminal is CONTINUE INPUT OR MSG. If the first character of the next input is a single quote character, it is treated as the second of a pair of single quotes and the message is continued. Any character other than a single quote causes the message to be complete, and that character is treated as the first character of a new operand.

New line (NL) characters within the message are kept. (If the first character is a NL, it is deleted.) This allows the operator to enter M=' and then carriage return (CR) or the equivalent of CR, to begin entering the message text at the left margin. That first CR is deleted. Additional CRs may be entered if blank lines are desired at the top of the transmitted message.

Note: These blank lines appear between the heading (time, date, and originator's terminal identifier) and the message, if the HEADING operand is specified.

With NL processing, the delivered message is positioned at the left margin. If an unformatted message, or a line within a formatted message, exceeds the line width defined for the receiving terminal, sentences will be split between words for any line exceeded.

ROUTE

is the operand which specifies the destination(s) to receive the message. For routing messages to 3600, 3770 (batch) or 3790 (batch) terminals, also refer to "3600, 3770 (Batch) and 3790 (Batch) System Destinations" later in this section.

termid

a one- to four-character terminal identifier to which the message is routed. If routing is performed to several terminals of the same device and map suffixes, CICS/VS processes the message identically for all of them and the most restricting page size prevailing is used. See the CICS/VS Application Programmer's Reference Manual (Macro Level) for further details of device and map suffixes.

A terminal identification specified in a message switching transaction must not contain any of the following characters:

- / (slash)
- , (comma)
-) (right parenthesis)
- ((left parenthesis)
- + (plus sign)
- (minus sign)
- * (asterisk)
- or a space

/opid

a one- to three-character operator identification preceded by a slash (without termid). The message is routed to the first terminal (located in a search from the start of the terminal control table) to which an operator with that identification is currently signed on. If no such terminal is found, the operator transmitting is notified.

An operator identification specified in a message switching facility must not contain any of the following characters:

- , (comma)
-) (right parenthesis)
- or a space

termid/opid

a terminal identifier is qualified by an operator identification to restrict the message delivery to the specified operator at the terminal location.

ALL

general broadcast to all terminals.

.termlist

a one- or two-character terminal list table (TLT) suffix preceded by a period (for example, .xx for DFHTLTxx). Each TLT module name referenced must be included in the processing program table (PPT). A maximum of ten terminal lists may be concatenated. The entries in the terminal lists contain terminal identification and/or operator identification. Duplicate entries in concatenated lists will be deleted. Entries are considered duplicate if each has the same terminal identification and operator identification.

(+termid/opid,...)

a +termid/opid adds the specified destination (if not a duplicate) to any destinations contained in the requested TLT. A -termid/opid deletes the specified destination from the requested TLT. A -termid, without an opid, deletes all destinations of that terminal (with or without operator identification) resulting from the requested TLT. + or - termid/opid parameters only affect entries resulting from requested TLTs and have no effect on other + or - termid/opid parameters. All TLT suffixes must be entered before any + or - parameters.

A ROUTE operand may be divided across multiple consecutive inputs. However, if it references a terminal list table, it must be completed in the same input as started. An individual ROUTE parameter (termid/opid) may not be split across two inputs.

TIME

is the time at which the message should be delivered based on a 24 hour clock or, if the value is preceded by a plus (+), it specifies the amount of time delivery of the message is to be delayed from the present time. TIME may be entered in one of the following forms. (h represents hours and m represents minutes.)

hhmm	0001 through 2400	mm is less than 60
+hhmm	0000 through 2400	mm is less than 60
+mm	00 through 99	
+m	0 through 9	

A delivery time on the current day within the past one hour is considered as requesting immediate delivery. An earlier time is considered already passed and is treated as an error.

DATE

is the date on which the message should be delivered, and is specified in one of the following forms. (d represents days, m represents months, and y represents years.)

yy.ddd	year and day number	yy 00 through 99	ddd 001 through 366
mm/dd	month and day	mm 01 through 12	dd 01 through 31
mm/dd/yy		yy 00 through 99	
+d		d 0 through 4	

+d specifies the number of days from the current day for message delivery.

The date is entered as dd/mm, or dd/mm/yy if the DFHSG macro specified PROGRAM=CSA,DATFORM=DDMMYY.

To avoid confusion during the half hour period before and after a date change, D=+d entries are not permitted between 2330 and 0030.

Note: TIME and DATE may be specified in the following combinations to schedule the message for output as shown:

neither - As soon as the receiving terminal is free.

- TIME= - At the specified time today or from the present.
- DATE= - At this time on the specified date.
- TIME=,DATE= - At the specified time on the specified date.

The time and date must be less than 100 hours from the beginning of the current day. This makes the latest time 3:59 a.m. on the fourth day from the day issued. Future message delivery uses CICS/VS time services which is restricted to less than 100 hours.

ERRTERM

specifies the identifier of the terminal to which notification is to be sent if the message is purged because it is undeliverable. ORIG is a way of specifying the identifier of the originating terminal.

Note: A message is considered undeliverable to a destination if it cannot be delivered within a certain interval after the requested delivery time. This interval is specified by the system programmer. If no interval is specified, no action is taken for undelivered messages and the ERRTERM operand has no effect.

If PRGDLAY was specified in the DFHSG Program=BMS macro, the transient data destination CSMT is notified of the number of undeliverable messages purged for a terminal. In addition, if ERRTERM is entered, the specified terminal is notified of the message number, title identification, and destination of the message.

OPCLASS

This optional operand specifies one or more numbers (1 through 24) which define the operator classes required for messages to be eligible for delivery.

If OPCLASS is specified with the ROUTE operand, the message is routed to all requested destinations but is not eligible for delivery to a terminal unless the class of the operator signed on matches one of the numbers specified by OPCLASS. (If a ROUTE destination is qualified by an operator identification, OPCLASS is ignored for that destination.)

If OPCLASS is specified without the ROUTE operand, the message is routed to all terminals currently signed on with an operator class that matches one of the numbers specified by OPCLASS.

ID

specifies a title or identification to be associated with the message. The title has a maximum length of 62 characters and must be enclosed in parentheses.

See "Basic Mapping Support (BMS) Terminal Paging Commands" in Chapter 2 of this manual, for commands describing how a terminal operator can request a display of the titles of all messages queued for immediate delivery to that terminal.

HEADING

causes the current time, date, and originating terminal's identification to precede the message text. HEADING=NO causes a previous heading request to be ignored.

PROTECT

specifies message recovery in the case of a CICS/VS emergency restart.

YES

causes a prefix of \$\$ to be used for the temporary storage data identification of the stored message.

NO

causes a previous protect request to be ignored.

prefix

specifies a one- to two-character prefix to be used for the temporary storage data identification of the stored message. If one character is specified, the required two-character data identification prefix will have a \$ as the second character. (For example, PROTECT=T causes a prefix of T\$.)

If the PROTECT operand is not specified, a default prefix of ** is used. ** is also the default for user application programs issuing BMS message requests where no protection is specified (REQID operand omitted).

A temporary storage table (TST) entry is needed for each prefix specified for the PROTECT operand in order for message recovery to be effective for that prefix. For details see the CICS/VS System Programmer's Reference Manual.

SEND

indicates that all of the operands have been entered and that the message is to be routed. SEND is the final operand and must be followed by a space or end of data.

CANCEL

causes the current input to be ignored and institutes a non-conversational status between the terminal and the message switching transaction. CANCEL must be the last six characters of the input. CANCEL is also effective within a message.

LOGICAL UNIT DESTINATIONS

This section describes the use of the CMSG transaction to transmit messages to logical units. For details of message-handling within CICS/VS subsystems, and of the use of the message switching transaction at subsystem terminals, refer to the appropriate CICS/VS subsystem guide.

Each logical unit in a CICS/VS-SNA network is identified by a single terminal identification, and, provided that the logical unit is capable of receiving message text, messages may be routed to it in the same way as they are routed to non-SNA terminals. Routing by operator identifier

may also be employed if the logical unit supports operator sign-on, and SNA and non-SNA destinations may be specified in the same ROUTE operand.

The actual destination for a message sent to a logical unit may be a display or printer device, or it may be a data set or an application program in a subsystem controller. To the message sender, however, the destination is simply a "terminal", and any necessary formatting is performed by the CMSG transaction or within the subsystem controller itself.

Logical Device Codes

Some types of logical unit may be used to obtain access to more than one resource within a subsystem. For example, data sent to a 3601 logical unit may be intended for a 3604 Keyboard Display, a 3618 Line Printer, or some other element of the 3600 subsystem. The facility provided by CICS/VS to permit destination selection within logical units of this type is the Logical Device Code (LDC).

The logical units that support destination selection by LDC are:

- 3601 logical unit
- 3770 batch logical unit
- 3770 batch data interchange logical unit
- 3790 batch data interchange logical unit

For the user of the message switching transaction, the LDC is simply a two-character mnemonic code whose meaning is defined by the CICS/VS installation. It may be used to qualify a logical unit destination by including it in the ROUTE operand in the following way:

```
ROUTE=
    {[termid][*ldc][ /opid ][, ... ]}
    ALL[*ldc]
    {.termlist[*ldc][ , ... ]}[ , {±[termid][*ldc][ /opid ][, ... ]}]
```

where:

*ldc

is a two-character LDC mnemonic preceded by an asterisk (*) which qualifies the destination(s). The *ldc parameter may qualify a logical unit identification (termid), a general broadcast (ALL), or a terminal list table specification (.termlist). The *ldc parameter applies only to logical units and is ineffective for all start-stop and BSC terminals.

Different LDC mnemonics may be included in one ROUTE operand specification; however, all destinations for one message must indicate the same device type.

termid*ldc
associates an LDC mnemonic with a logical unit identification

ALL*ldc
is a general broadcast to all terminals with the same LDC mnemonic qualifying all logical units.

.termid*ldc

qualifies (overrides any LDC specified within the terminal list table) all entries in this terminal list table with the specified LDC mnemonic. This LDC specification is ineffective for start-stop and BSC terminals.

Note: This qualification of a TLT occurs before any succeeding TLT(s) or +/- entries are processed. (See example 9 in "Example of ROUTE Operand for 3600 Destinations.")

+termid*ldc/opid

adds a destination, if not a complete duplicate to any contained in the requested TLT(s).

-termid*ldc/opid

deletes duplicate destinations resulting from the requested TLT(s). A -termid*ldc, without an opid, deletes all destinations of that termid*ldc (with or without operator identifications) resulting from the requested TLT(s). A -termid/opid, without an LDC mnemonic, deletes all destinations of that termid/opid (with or without LDC mnemonics) resulting from the requested TLT(s).

If a destination is specified by /opid without termid, it becomes termid/opid, in which termid is the identification of the first terminal or logical unit (located in a search from the start of the terminal control table) to which an operator with that identification is currently signed on. If no such terminal or logical unit is found, the destination is not valid and the operator is notified.

Message Switching Responses

Every input from the terminal receives a response message. Most responses are preceded by status indicators in the form:

M R T D E O I H P S OK

where the letters before OK represent the first character of each operand except CANCEL. These status indicators identify the specific operands which have been processed and are currently in effect.

Errors may occur because of:

- Syntax (for example, misspelled operand, unbalanced parentheses, terminal identification greater than four characters, invalid operand separator, and message and destination not provided)
- Specification (for example, terminal identification not in terminal control table)
- Operation (for example, operator not currently signed on to system)

The following conditions apply:

1. Syntax errors within an operand cause it to be rejected by the message switching routine. To correct a known error, it is simply necessary to retype the operand before typing the SEND keyword.

2. Syntax errors result in no data being processed in that input past the detected error. All following data must be reentered to be included.

3. A specification or operation error message may be written to the terminal with a status indicator which shows that the operand in question has been processed and is still in effect. For example, two possible error messages might be:

a. M OK TERMID GT 4 CHAR AT T004A

b. M R S OK INVLD TERMINL ID T004

Message a is caused by the syntax error of a terminal identifier greater than four characters. The absence of the R status indicator preceding the message shows that the ROUTE operand is not currently in effect and that the message must be reentered.

Message b is caused by the specification error of the terminal identifier not having an entry in the terminal control table. The R status indicator shows that the ROUTE operand specification is still in effect. The operator action as a result of this type of message is either:

- a space (entry deleted)
- termid/opid specifying a termid and/or operator identification (entry changed)
- any operand (the route operand may be completely reentered or another operand may be entered)

Note: If an operand is entered, the error message will be repeated unless a new ROUTE operand is entered before SEND. If the bad entry is changed or deleted by responding with a space or termid/opid, the message is routed unless other errors are still present. These errors will be indicated by another message. If an operand is entered, it signifies normal entry mode in which multiple operands can be entered requiring another SEND operand to end the input.

The following is a list of all the responses from the message switching program (DFHMSP) in alphabetic sequence. Because of device-dependent considerations, all responses are limited to 25 characters plus the status indicators.

ALL ROUTE ENTRIES DELETED

A space entered in reply to a bad destination message caused the remaining destination(s) to be deleted leaving no destinations to route the message. This condition forces a return to normal operand mode, and a ROUTE operand must be reentered to provide the message destination(s).

CANCELED- TEMP STRG ERR N

Where n=

1. An error occurred on a temporary storage request. One cause of this condition is that the size of the temporary storage record exceeds the CI (control interval) size of the temporary storage data set. For further details of temporary storage data set size, see the appropriate CICS/VS System Programmer's Guide (OS/VS and VSE).
2. An error occurred on a temporary storage request. A possible cause of this response, not related to a temporary storage problem, is that a temporary storage record is requested which does not exist. This can happen if:

The transaction identification is entered followed by a "C" (MSGC), which requests a continuation of a message switching transaction, but no previous status information exists for this terminal. See the section "Message Switching Continuation".

Note: A CICS/VS cold start of temporary storage causes the loss of any status saved from a previous CICS/VS execution.

The transaction identification is entered as lower case data (msg) on a 3270 display device which is defined as dual case keyboard DFHTCT TYPE=TERMINAL,FEATURE=(..., DCKYBD,...),..., and for which no previous message switching transaction status exists.

Note: The transaction identification in the terminal input/output area (TIOA) is not translated but an uppercase translation is performed by CICS/VS to determine which transaction to initiate. To correct this problem, enter the transaction identification as uppercase data.

3. An error occurred on a DFHBMS TYPE=TEXTBLD request.
4. An error occurred on a DFHBMS TYPE=PAGEOUT request.

(n=3 and 4 most likely were caused by a temporary storage error.)

CLEAR/CANCL OR CONT INPUT|ROUTE|MSG

An operator on a 3270 display device pressed the CLEAR key and the message says to continue (CONT):

INPUT

the last operand in the previous input was complete. Enter an operand to continue.

ROUTE

the last operand in the previous input was ROUTE and a ")" was not found. Continue entering ROUTE destinations.

MSG

the last operand in the previous input was MSG and a quote character to end the message was not found, or a quote character was found as the last character of the input, and might be the first of a paired quote character sequence. If the previous input did not end with a quote character, continue entering the message.

If the previous input ended with a quote character, enter another quote character to continue the message (which causes one quote character to be included), or enter any operand which causes the message to be considered complete.

Note: If the operator replies by again pressing the CLEAR key (two consecutive times) it will have the same effect as entering CANCEL for the last six characters of the input.

CONTINUE INPUT

A SEND operand has not been processed, and a ROUTE or MSG operand was not being continued. Continue by entering any operand.

CONTINUE INPUT OR MSG

The previous input ended with a quote character with the MSG operand being processed. This quote character could specify the end of the MSG operand or could be the first character of a paired quote character sequence (signifying that one quote character was to be included within the message).

If the next input starts with a quote character, the message is continued with one quote character included in the message. A non-paired quote character is required to end the MSG operand.

If the next input starts with any character other than a quote character, it will be treated as the beginning of a new operand and the MSG operand will be considered complete.

CONTINUE MSG

The previous input ended with the MSG operand being processed. Continue the message.

CONTINUE ROUTE OPERAND

The ROUTE operand was being processed in the previous input and a space or EOD was found. Continue the ROUTE operand.

DATE ALREADY PASSED

A delivery date prior to the current day is invalid.

DATE INVALID AT XXXXXXXX

Date must be in one of the following forms:

1. yy.ddd (year and day number) — yy is 00 through 99; ddd is 001 through 366
2. mm/dd (month and day) — mm is 01 through 12; dd is 01 through 31
3. mm/dd/yy — yy is 00 through 99
4. +d -- d is 0 through 4

Note: September 5, for example, must be specified as 09/05 and not as 9/5.

DATE NOT XX/XX AT XXXXX

DATE must start with two numeric digits followed by a slash (for month), or a period (for year). This message is issued if the third character of DATE is not a slash or a period.

DATE TOO FAR IN FUTURE

Future delivery may not be specified after 3:59 AM on the fourth day from the current day. This condition may have occurred either by:

1. D=+n, where n is greater than four, or
2. DATE specified explicitly as being after the fourth day from the current day, or
3. A condition of DATE and TIME which exceeds the stated limit.

If conditions 1 or 2 occur, the DATE operand is not in effect (the D status indicator is not present). If condition 3 occurs, both the DATE and TIME operands are currently in effect (the D and T status indicators precede the message) and one or both of them must be changed to effect a valid delivery time or the error will occur again.

ERRTERM INVALID AT XXXXX

An ERRTERM must be one to four characters.

ERRTERM INVLD/UNSUPP XXXX

A terminal identifier specified for the ERRTERM operand does not have an entry in the terminal control table, or it is for a terminal type not supported by basic mapping support and is therefore invalid. Valid replies by the operator to this are:

1. A terminal identifier or ORIG in the same format as a normal ERRTERM destination (without entering the operand ERRTERM or E). The message will be routed following this input unless the new ERRTERM specified is invalid. In this case, the message will be repeated.
2. A space as the first character (followed by EOB or comments) causes the entire ERRTERM specification to be eliminated. The message will be routed following this input.
3. Any operand which causes a return to normal operand processing mode. If another ERRTERM operand is not entered to correct this condition, the same error message will be repeated after SEND is reentered.

HEADNG NOT YES/NO AT XXXX

A HEADING operand may only be specified as follows:

```
HEADING
HEADING=YES
HEADING=NO
H
H=YES
H=NO
```

ID OPERAND GT 62 CHARS

An ID operand must be from 1 to 62 characters in length enclosed within parentheses.

ID OPERAND MISSING (

The ID operand requires the identification to be enclosed within parentheses.

ID PARAM MISSING OR NO)

The ID operand must be from 1 to 62 characters in length enclosed within parentheses.

INVALID LDC AT XXXXXXXX

The LDC mnemonic is not valid for the logical unit, or a previous entry contained an LDC mnemonic which indicated a different device type.

Note: A missing LDC mnemonic can cause this message if the default mnemonic for that station indicates a different device type than a previously indicated mnemonic (specified or defaulted).

INVALID OPND AT XXXXX

An invalid operand xxxxx (possibly caused by a keying error) was encountered. No data beyond this point was processed. The status indicators represent the operands which are in effect.

INVALID TBL SFX AT XXXXX

A terminal list table suffix must be one or two characters preceded by a period.

INVLD OPERATR ID AT XXXXX

An operator identification must be one to three characters preceded by a slash.

INVLD SEPARATOR AT XXXXX

The end of an operand must be followed by a space, a comma (except for SEND), a carriage return (new line character), or end of data (EOD).

INVLD TERMINL ID XXXX

There is no entry in the terminal control table for the terminal identifier specified for a ROUTE destination. The valid operator action in reply to this is one of the following:

1. terminal and/or operator identification in the same format as a normal termid/opid ROUTE destination (without entering the operand ROUTE= or R=) which replaces the invalid destination.
2. A space as the first character, which causes the invalid destination to be deleted.
3. Any operand which causes a return to normal operand processing mode. If another ROUTE operand is not entered, the same condition will exist after the SEND operand is reentered.

Note: 1 and 2 will cause the message to be routed if the resulting destinations are valid; otherwise, another error message will be issued.

LDC NOT 2 CHARS AT XXXXX

The LDC mnemonic which follows the '*' in the ROUTE destination must be two characters.

MESSAGE HAS BEEN ROUTED

A SEND operand has been processed and the message has been routed to its destination(s). This is the normal completion message to a message switching transaction.

MSG NOT SENT- NO RECEIVER

This condition is caused by an OPCLASS operand specified without a ROUTE operand and no operators, with the specified operator class, or classes, currently signed on to terminal types supported by basic mapping support.

To correct this situation, a new destination(s) must be entered by the ROUTE and/or OPCLASS operands.

NEED OPCLASS OR ROUTE

The SEND operand was entered without specifying any destination(s) for the message. To correct this situation, a destination(s) must be entered by the ROUTE and/or OPCLASS operands.

NO INPUT- REENTER

A transaction identification was entered followed by end-of-data (EOD), or the number of backspace characters entered caused the deletion of all of the data (including the position following the transaction identification if present). If the input does not start with the transaction identification, the terminal remains in conversation. Otherwise it is not in conversation.

NO MESSAGE PROVIDED

The SEND operand was entered without specifying the message. To correct the situation, provide the message.

NO MSG STRT QUOT AT XXXXX

A MSG parameter must be enclosed within single quote characters. A quote character must follow a M or MESSAGE.

NO TRMID FOR LDC AT XXXXX

The destination started with a '*'. A logical unit identification must precede the LDC mnemonic.

NO TERM LIST TBL- XX

An entry for a terminal list table with suffix xx (DFHTLTxx) was not found in the PPT.

OPCLASS NOT 1-24 AT XXXXX

An OPCLASS parameter must be from 1 through 24.

OPERATORS NOT SIGNDON NNN

ROUTE= destinations specified operator identifications without terminal identifiers (that is, ROUTE=/opid). nnn operator identifications are not currently signed on.

The valid reply to this is one of the following:

1. A space as the first character which deletes the nnn destinations.
2. The character D (or any other character) which causes each of the nnn destinations to be individually displayed through the message OPRTR ID NOT SIGNDON.
3. Any operand which causes a return to normal operand processing mode. If another ROUTE operand is not entered, this same condition will exist if an operator does not sign on before the SEND operand is reentered.

Note: This message is only issued if nnn is greater than five; otherwise, each destination is individually displayed. Reply 1 causes the message to be routed if the resulting destinations are valid; otherwise, another error message will be issued.

OPRTR ID NOT SIGNDON /XXX

An operator with identification xxx, specified as a destination (entered either by the terminal operator or included as an entry in a TLT whose suffix was specified), is not currently signed on to any terminal controlled by CICS/VS. The valid reply to this is one of the following:

1. A terminal and/or operator identification in the same format as a normal termid/opid ROUTE destination (without entering the operand ROUTE or R) which replaces this /xxx destination.
2. A space as the first character which causes the /xxx destination to be deleted.

3. Any operand which causes a return to normal operand processing mode. If another ROUTE operand is not entered, this same condition will exist if an operator with identification xxx does not sign on by the time the SEND operand is reentered.

Note: Replies 1 and 2 will cause the message to be routed if the resulting destinations are valid, otherwise another error message will be issued.

PROTECT OPND NOT 1-2 CHAR

A PROTECT operand may only be specified as follows:

PROTECT	P
PROTECT=YES	P=YES
PROTECT=NO	P=NO
PROTECT=PREFIX	P=PREFIX

where PREFIX is one or two characters.

ROUTE INVALID AT XXXXX

A field separator entered prior to the first ROUTE parameter, or two consecutive field separators were found. Reenter a valid ROUTE operand.

SPACE MUST FOLLOW TRANSID

One or more spaces must follow the transaction identification before the first operand can start. (The character C causes a continuation from the last input preceding a normal completion or a cancelation.)

TERMID GT 4 CHAR AT XXXXX

A terminal identifier must be one to four characters.

TERMID NOT +/- AT XXXXX

All TLT suffixes must be specified before any individual destination (which must be preceded by a + or -) may be entered. A ROUTE operand which specifies a TLT suffix may not be continued on a succeeding input. If a ROUTE operand includes more than one parameter, it must be enclosed in parentheses.

TERMINATED BY OPERATOR

The operator entered CANCEL as the last six characters of the previous input, or pressed the CLEAR key two consecutive times on a 3275/3277 terminal. The previous input is canceled and the terminal is not in conversational mode with CICS/VS message switching.

TIME ALREADY PASSED

A delivery time, for the current day, earlier than one hour prior to the current time is considered already passed and is invalid.

If the message is for immediate delivery, enter T=+0, to replace the TIME operand which is still in effect.

If the message is for delivery at the specified time on a future day, enter the appropriate DATE operand. The specified time is still in effect.

If the message is for delivery at a different time, reenter the TIME operand.

TIME INVALID AT XXXXX

TIME must be one of the following:

hhmm	0001 through 2400, where mm is less than 60
+hhmm	0000 through 2400, where mm is less than 60
+mm	00 through 99
+m	0 through 9

where hh=hours and mm=minutes

TIME NOT 4 CHARS AT XXXXX

A TIME parameter must be a four-digit number if not preceded by +.

TOO MANY TBL SFX AT XXXXX

A maximum of ten TLT suffixes may be specified.

UNBALANCD PARENS AT XXXXX

A ROUTE or OPCLASS operand started or ended with a parenthesis but did not have one at the end or beginning. xxxxx are the characters near the end of the operand (above).

UNSUP OPRT TRMNL XXXXXXXXX

An operator identification without a terminal identifier was specified as a ROUTE destination; however that operator is signed on to a terminal which is a type not supported by basic mapping support and is, therefore, an invalid destination.

The valid reply to this is the same as for the message OPRTR ID NOT SIGNDON (above).

UNSUP TERMINAL XXXXXXXXX

A terminal identifier, specified as a ROUTE destination, is for a terminal type not supported by basic mapping support and is, therefore, an invalid destination.

The valid reply to this is the same as for the message INVLD TERMINL ID (above).

ZERO LENGTH MSG AT ''

A message must have at least one character enclosed in single quote characters. A quote character to be included as part of a message must be entered as two quote characters. A message must start with a single quote character and may be followed immediately by pairs of quote characters.

+DATE INVLD 2330 TO 0030

A DATE=+ operand is invalid during the period 30 minutes before to 30 minutes after midnight.

Message Switching Examples

The following topics are described in this section:

- ROUTE and OPCLASS operands
- Messages delivered to the same destination more than once
- TIME and DATE operands
- Complete transactions
- The ROUTE operand for 3600 and 3270 (batch) destinations

ROUTE AND OPCLASS OPERANDS

<u>Input</u>	<u>Result</u>
1. ROUTE=LA04	Route message to terminal identifier LA04.
2. R=(LA04,OL,SF2)	Route message to the three terminal destinations: LA04, OL, and SF2.
3. R=LA04/PJL	Same as example 1, but requires that operator identification PJL be signed on to LA04 before the message can be sent.
4. R=(LA04,OL/LBS,SF2)	Same as example 2, but requires that operator identification LBS be signed on to OL before the message can be sent to OL.
5. R=/PJ	Route message to the first terminal found (in a search from the beginning of the terminal control table) with operator identification PJ currently signed on. If no terminal satisfies this condition, the message will be discarded. The terminal operator will be notified of this occurrence by an error message.
6. R=(LA04,OL,SF2) , OPCLASS=(2,4,7,12)	Same as example 2, but requires that an operator class of 2, 4, 7 or 12 be signed on to the terminals before the message can be sent to those terminals.
7. R=(LA04,OL/LBS,SF2) , O=(12,4,2,7)	Same as example 6, but requires that operator identification LBS be signed on to OL before the message can be sent to OL (operator identification overrides OPCLASS). There is no operator class requirement for OL.
8. R=(LA04/PJL,/MGK,OL) , O=(8,2)	Route message to LA04 and OL. It requires that operator identification PJL be signed on to LA04 before the message can be sent to LA04, and that operator class 2 or 8 be signed on to OL before the message can be sent to OL. The message will also be sent to the first terminal found with operator identification MGK currently signed on.
9. R=(/PJL,/MGK,/L)	Messages will be sent to the first terminals found with operator identification PJL, MGK, or L currently signed on. In this example, a maximum of three messages may be sent -- one to each operator identification.
10. R=ALL	Broadcast message to all terminals.
11. O=(2,10,4),R=ALL	Messages will be routed to all terminals but will not be sent to any terminal until that terminal has an operator class of 2, 4, or 10 signed on.

<u>Input</u>	<u>Result</u>
12. R=.MK	Load terminal list table DFHTLTMK and use its terminal identifier and/or operator identification specifications.
13. R=(.MK,.P,.LS)	Load terminal list tables DFHTLTMK, DFHTLTP, and DFHTLTLS and concatenate the entries from the tables with duplicate entries deleted.
14. R=(.MK,.P,.LS, +LA04/PJL,-OKLN, -SF02/LBS)	Same as example 13, but add terminal identification LA04 qualified by operator identification PJL, delete all entries found with terminal identifier OKLN (whether or not they are qualified by operator identification), and delete all entries for terminal identifier SF02 qualified by operator identification LBS if found.
15. O=(10,3,7), R=(.LS,.P,.MK, -OKLIN,+LA04/PJL, -SF02/LBS)	Same as example 14, but the message will not be sent to terminals, unless they are associated with an operator identification, until operator class 3, 7, or 10 is signed on.
16. O=(8,2)	Message will be sent to all terminals which currently have an operator class of 8 or 2 signed on.

MULTIPLE DELIVERY TO SAME TERMINAL

- A message may be delivered more than once to the same destination as follows:

<u>Input</u>	<u>Result</u>
- R=(T001/OP1,T001/OP2)	The message is routed for two transmissions to terminal T001 but requires an operator with identification OP1 or OP2 be signed on before it is eligible for delivery. The message can be sent twice to T001 but under different conditions.
- R=(T001,T001)	The message is routed for two transmissions to terminal T001 and can be sent two consecutive times. (See note below.)
- R=(T001,T001/OP1)	The message is routed for two transmissions to terminal T001 but one transmission requires an operator with identification OP1 to be signed on. If the operator is already signed on the message may be transmitted two consecutive times to T001. (See Note 1.)

InputResult

- R=(T001,T001/OP1,/OP1) Same as an R=(T001,T001/OP1) and, if operator with identification OP1 is signed on to T001 at the time the message is entered, the message may be transmitted three consecutive times to T001. (See Note 1.)

Note: If the destination terminal is in TRANSCEIVE status, the same message will appear consecutively at the terminal. If the terminal status is TRANSACTION, the operator must request message delivery.

For the following examples, assume that terminal list tables DFHTLTL1 and DFHTLTL2 contain the following entries:

InputResult

DFHTLTL1	T001	(Duplicate specified by user when the table was generated)
	T001	

DFHTLTL2	T001
	T001/OP1

- R=(.L1,.L2) All entries from terminal list table DFHTLTL1 will be included as destinations. Duplicate entries within DFHTLTL1 will be kept and not removed. All entries in DFHTLTL2 will be checked for duplicates against the entries in the previously specified DFHTLTL1 and, if an exact duplicate is found, it will not be repeated. Duplicates will be kept unless they are duplicates of an entry in DFHTLTL1.

DFHTLTL1

entries	T001	included in destination list
	T001	included in destination list (duplicate within same TLT is kept)

DFHTLTL2

	T001	not included in destination list because duplicate in previous TLT
	T001/OP1	included in destination list (not exact duplicate)

Resulting destination list is T001, T001, T001/OP1

- R=(.L2,.L1) Note the different result if the TLTs have the same entries as in example 1, but are specified with L2 first.

DFHTLTL2

	T001	included in destination list
	T001/OP1	included in destination list

InputResultDFHTLT1

T001	not included - duplicate in previous TLT
T001	not included - duplicate in previous TLT

Resulting destination list is T001, T001/OP1

- R= (.L1,.L2,+T001) Same result as R= (.L1,.L2).
+T001 is not added, because it
is a duplicate of an entry from
DFHTLT1.
- R= (.L1,.L2,+T001/OP1,-T001) In this example, +T001/OP1 is
not added, because it is a
duplicate of an entry from
DFHTLT2. The -T001 causes all
entries from TLTs which reference
T001 to be deleted. An ALL ROUTE
ENTRIES DELETED is issued.

Note: If DFHTLT2 did not have an entry T001/OP1,
the +T001/OP1 would have caused that entry to be added to the
destination list. The -T001 entry would not have deleted the
+T001/OP1 entry because only entries from TLTs are affected
by + or - entries.

- R= (.L1,.L2,-T001,+T001/OP1) The -T001 causes all entries
from the TLTs which reference
T001 (including the T001/OP1
entry in DFHTLT2) to be deleted.
The +T001/OP1 entry is then added
and becomes the only resulting
destination. There is no
duplicate since it was just
deleted.

TIME AND DATE OPERANDS

(Assume current time is 9:00 a.m. on December 29, 1975)

<u>Input</u>	<u>Result</u>
	Message will be routed for delivery:
1. no time or date	immediately
2. T=0930	at 9:30 a.m. today
3. T=2130	at 9:30 p.m. tonight
4. T=+5	at 9:05 a.m. today (See Note 2.)
5. T=+90	at 10:30 a.m. today (See Note 2.)
6. T=+0130	same as example 5 (See Note 3.)
7. T=+0815	at 5:15 p.m. today
8. T=+2400	at 9:00 a.m. on December 30 (See Note 3.)
9. D=12/30 or D=12/30/75	at 9:00 (current time) on December 30
10. D=+1	same as example 9
11. D=01/01/76	at 9:00 (current time) on January 1
12. D=+3	same as example 11
13. T=2130,D=12/30	at 9:30 p.m. on December 30
14. D=+1,T=+1230	same as example 13
15. D=+1,T=2130	same as example 13
16. T=0359,D=01/02/76	3:59 a.m. on January 2, 1976 (See Note 1.)

(Assume current time is 11:50 p.m. on December 29, 1975)

17. T=2130,D=12/30	same as example 13
18. T=2130,D=+1	error message +DATE INVLD FROM 2330 to 0030 (See Note 4.)
19. T=2300	immediately (See Note 5.)
20. T=2245	error message TIME ALREADY PASSED (See Note 5.)

Notes:

1. Latest future delivery - 99 hours 59 minutes from the beginning of the current day.

2. T=+mm, mm can be any one- or two-digit number. In this form, the minutes may exceed 59.
3. T=+hhmm value must be four digits and may not exceed 2400.
4. Because of the possible confusion as to the current day during the half hour period before and after a date change, a + parameter for DATE is not allowed from 11:30 p.m. (2330) to 00:30 a.m. (0030).
5. A delivery time on the current day within the past one hour from the current time is considered as requesting immediate delivery. An earlier time is considered already passed and is treated as an error. If the current time is 0015, a T=2345 entry will be interpreted as 11:45 p.m. today and not be for immediate delivery.

COMPLETE TRANSACTIONS

(# represents carriage return)

1. CMSG R=ALL,'GOOD MORNING#TODAY IS FRIDAY FEB 1',S
2. CMSG 'GOOD MORNING',R=.G1,T=0900,S
3. CMSG 'GOOD MORNING',R=(.G2,+CHI4),T=1000,S

Example 2 routes a good morning message to be delivered at 9:00 a.m. to all destinations contained in terminal list table DFHTLTG1. (Locations in Eastern time zone.) Example 3 message is for delivery at 10:00 a.m. to terminals in Central time zone (DFHTLTG2). Also included as a destination is terminal identifier CHI4 which was recently added but not yet included in the TLT.

4. CMSG 'SUPERVISORS'#MEETING IN 5 MINUTES',O=(4,7),S

An important meeting has been called. This input routes the message to all supervisors who are assigned operator class 4 or 7 and are currently signed on to CICS/VS.

5. CMSG R=ALL,'NEW PRICE MODEL 402 - \$28.70',S
6. CMSG 'FRED - WHAT IS CURRENT STOCK ON PART/NO 4837-LP4#BPK',R=BLD3,H,S
7. CMSG 'PNO 4837-LP4,QTY 26?',R=/BPK,H,S

Example 6 routes a message to BLD3 asking Fred a question and including the requestor's initials (operator identification). A heading is included so that Fred also knows the originating terminal identifier. Example 7 shows Fred's answer routed to the terminal at which operator identification BPK is currently signed on.

8. CMSG 'MR. BRID KADDER ARRIVING 3:15 PST. PLEASE MAKE RESERVATION#M. KIRN',R=PADC,H,S
9. CMSG 'SHUTDOWN IN 5 MINUTES',R=ALL,T=1655,S

Note: Examples 1, 2, 3, and 9 are possible candidates for inclusion in a sequential (BSAM) terminal input stream during startup.

ROUTE OPERAND FOR 3600 AND 3770 (BATCH) DESTINATIONS

These examples assume the following:

- Terminal identifications T36n and T37n are 3600 logical units and 3770 batch logical units respectively, and all others are start-stop or BSC terminals.
- LDC mnemonics D5 and LP have been defined for the system and T361, T362, and T363 as follows:

	LDC Mnemonic	Device Type
DFHTCT TYPE=LDC	LDC=DS	DVC=3604 display station
DFHTCT TYPE=LDC	LDC=LP	DVC=3618 line printer
DFHTCT TYPE=TERMINAL	LDC=(DS,LP)	

- LDC mnemonic P1 has been defined for the system and T371, T372, and T373 as follows:

	LDC Mnemonic	Device Type
DFHTCT TYPE=LDC	LDC=P1	DVC=BLUPRT line printer
DFHTCT TYPE=TERMINAL	LDC=P1	

- Terminal list table DFHTLTL3 contains entries for

```
T361*DS
T362*DS/OP1
T362*DS/OP2
T363
T371*P1
T372*P1/OP1
T372*P1/OP2
T373
T40
```

- Terminal list table DFHTLTL4 contains entries for

```
T361*DS
T362*DS/OP1
T362*DS/OP2
T363
T40
```

Input

1. R=T361*DS
2. R= (T361*DS, T362*DS/OP1, T363, T371*P1, T372*P1/OP1, T373, T40)

Result

Route message to terminal identification T361 qualified by LDC mnemonic DS.

Route message to T361 and T362 qualified by LDC mnemonic DS; to T363, using the default LDC; to T371 and T372 qualified by LDC mnemonic P1; to the console keyboard/printer T373; and to T40, which is a start-stop or BSC terminal.

T362 and T372 requires operator with identification OP1 be signed on before the message can be sent.

Input

Result

Note:

The default LDC mnemonic for T363 must indicate the same device type as LDC mnemonic DS.

3. R=ALL*LP

Route message to all terminals (3600, 3770 batch and interactive logical units, start-stop, and BSC) with all 3600 destinations qualified by mnemonic LP. LP is ignored for start-stop and BSC destinations.

4. R=.L3

Uses the terminal list table DFHTLT3 for message destinations. (Same as example 2 plus T362*DS/OP2 and T372*P1/OP2.)

5. R=(.L3,-T362*DS/OP2,-T372*P1/OP2)

Same as example 4 but delete T362*DS/OP2 and T372*P1/OP2. Same result as example 2.

6. R=(.L3,-T362*DS)

Same as example 4, but deletes all entries for T362*DS (with or without opids). Result is T361*DS, T363, all T37n terminals, and T40.

7. R=(.L3,-T362)

Same as example 6. -T362 deletes all entries for T362.

8. R=.L4*LP

LDC mnemonic LP qualifies (overrides) all entries in DFHTLT4. Resulting destinations are:

T361*LP
T362*LP/OP1
T362*LP/OP2
T363*LP
T40*LP

Note:

The LP mnemonic has no effect on the start-stop or BSC terminal T40.

9. R=(.L4*LP,-T362*DS)

The -T362*DS causes no action because the TLT destinations are qualified by LDC mnemonic LP before the additions or deletes are processed, thus causing no matching entry to delete.

Processed, thus causing no matching entry to be deleted.

10. R=(.L4,+T363*LP)

Causes error message 'INVALID LDC AT T363*LP' to be generated. LDC mnemonic LP has a different device type than does LDC mnemonic DS (first 3600 destination encountered was T361*DS). All 3600 destinations for one message must indicate the same device type. All 3770 batch logical unit destinations for one message must indicate the same device type.

Input

11. R=/OP2

Result

Route message to the first terminal or logical unit found in the terminal control table with operator identification OP2 currently signed on. If OP2 is signed on to T362, the resulting destination is T362/OP2 with the default LDC mnemonic for logical unit T362. This default is DS because it is the first LDC mnemonic defined for T362. The resulting destination is T362*DS/OP2.

Chapter 8. Statistics

CICS/VS system statistics are maintained by the CICS/VS management programs. This chapter describes the CSTT transaction, which enables the operator to initiate and terminate automatic recording of statistics, and to display or print the statistics which have been gathered. It also shows how the CSTT transaction can be used to initiate monitoring of individual tasks. (The monitoring facilities collect accounting, performance, and exception data). Finally, it describes the statistics produced by CICS/VS after recovery from system failure.

Statistics can be produced either once for each request, or at predefined intervals. In this chapter, the statistics requested on a one-time basis will be referred to as "requested system statistics". Those obtained at predefined periodic intervals will be called "automatic system statistics".

Requested statistics cannot be obtained while in automatic mode. However, if automatic statistics have not been specified, CICS/VS will output the system statistics anyway, when the system is shut down.

It must be noted that statistics counters in CICS/VS have a maximum capacity of 999 events. If this maximum value is exceeded, results will be unpredictable, which might distort the picture that is presented to the user by the statistics. This should only happen in cases when usage is very heavy or where there is a long interval between resetting the values.

Requested System Statistics

Requested system statistics are transmitted to the transient data destination CSSL as variable-length, unblocked records. When system statistics are requested by a terminal operator, an alternative destination may be specified.

Requesting all System Statistics to date

Request format:

CSTT AOR destid

Requesting all System Statistics and Resetting Counters to Zero

Request format:

CSTT AOC destid

Note: The total-number-of-tasks counter is never reset.

Requesting Selected System Statistics

Request format:

CSTT SOR destid label,DONE

destid

A four-character identifier of the destination to which statistics are to be sent. If this field is blank (that is, it consists of four blanks), CSSL is the default destination.

label

Can be one of the following labels, requesting a particular set of statistics. One or more labels can appear in the same request.

Label

Set of Statistics

TERM	Terminal statistics
PROG	Transaction and program statistics
FILE	File statistics
TASK	Task statistics
STOR	Storage statistics
DUMP	Dump statistics
TRAN	Transient data statistics
TEMP	Temporary storage statistics
JOUR	Journal Control statistics
DYTB	Dynamic Transaction Backout statistics
LINK	Intersystem and multiregion link statistics
IRCM	Interregion control statistics and statistics for batch operation

Note: Use of the label PROG causes the output of both transaction and program statistics. Use of the label FILE causes the following to be output:
data base data set statistics
DL/I data base statistics
VSAM shared resource statistics

DONE

This must be specified to end a list of labels used in one request.

In the output of transaction statistics, those transaction identification codes that relate to transactions initiated either by a function key, or a light pen (LPA), or an operator identification card reader (OPID), will be shown.

Entering SOC instead of SOR will cause all selected statistics to be reset to zero after transmission to the transient data destination. The total-number-of-tasks statistic is never reset.

Examples:

CSTT SOR CSMT TERM,STOR,DONE
sends the indicated statistics to destination CSMT.

CSTT SOR DES1 TASK,TRAN,JOUR,DONE
sends the indicated statistics to destination DES1.

CSTT AOR
sends all statistics to destination CSSL.

CSTT SOC CSMT TEMP,DONE
sends the indicated statistics to transient data destination CSMT and resets the indicated statistics to zero.

CSTT AOC
sends all statistics to transient data destination CSSL and resets all statistics (except total) to zero.

The statistics are written with no terminal control characters, such as idles or carriage returns. Usually, the destination identification is directed to a disk and is printed with system utilities or, in the case of OS/VS, can be automatically spooled to the printer when the destination identification is defined as a SYSOUT data set. Under CICS/DOS/VS, in order to obtain automatic printout of the statistics, the contents of the transient data queue must be assigned to a printer. If, however, the final destination identification is a terminal, the user must write a program to get the line of statistics from the destination identification, format it for the terminal, and write it.

Automatic System Statistics

The automatic statistics feature allows the user to get system statistics automatically on a periodic basis (for example, every two minutes), thus providing him with a tool for investigating and analyzing system performance. These statistics are cumulative for the period specified (that is, counters are reset at the end of each period). Because the counters are reset, statistics gathered during the time that automatic statistics requests are current are not accumulated into any subsequent statistics totals that are requested.

The output is recorded on two sequential extrapartition destinations, DD names DPHSTM and DFHSTN (DESTID names CSSM and CSSN), on disk storage or magnetic tape. These destinations will have been defined in the destination control table at system generation. If automatic switching (see later in this chapter) is not required, only CSSM will have been defined.

A CICS/VS statistics utility program is used to print the system statistics offline, formatting the data into an interval and/or a summary report.

Initiating Automatic Recording of System Statistics

Request format:

CSTT AUT,hhmm,nnnnn,nnnnn

hhmm

specifies the recording interval or period in hours and minutes from 0001 to 9959.

nnnnn

these values specify the number of intervals to be recorded on the primary and secondary data sets. After the data for the specified number of intervals have been recorded on the current data set, a switch occurs automatically and data is then recorded on the alternate data set. If one (or both) of the nnnnn values is not supplied it defaults to zero, which indicates that automatic switching should not occur when data is being recorded on that destination.

Note: Initiating automatic statistics prevents the concurrent use of requested statistics.

Terminating or Canceling Automatic Recording of System Statistics

Request format:

CSTT AUT,CAN

This transaction closes the current output data set, making the data available for processing by the CICS/VS statistics utility program. Also, requested statistics may again be obtained, using the appropriate transaction.

Optionally, the user can define two automatic statistics destinations (CSSM and CSSN) alternating between them during realtime execution of CICS/VS. The switching will normally take place automatically, based on the limits specified as the number of intervals to be recorded on each destination. The operator can request an immediate switch, as shown below.

Requesting Immediate Switching of Statistics Destination

Request format:

CSTT AUT,SWITCH

This causes the destination currently in use to be closed and the other automatic statistics destination to be opened and put into use at the next recording interval.

One of the following messages will be returned as a result of this request:

DPH1817 DESTINATION CSSy NOW BEING USED FOR AUTOMATIC STATISTICS
Indicates that the switch was successful. The y will be replaced by "M" or "N", depending on the destination put into service.

DPH1813 AUTOMATIC STATISTICS NOT ACTIVE
Indicates that automatic statistics was not active when the request to switch output destinations was made.

DPH1814 OPEN/CLOSE ERROR - DEST CSSy CODE=xx
Indicates that a return code of xx was received from the dynamic open/close routine when automatic statistics attempted to open or close the destination CSSy. Automatic statistics is terminated.

DPH1816 INVALID DESTINATION - CSSy
Indicates that the extrapartition transient data destination CSSy could not be found in the CICS/VS destination control table. Automatic statistics recording is terminated.

Requesting Information about Destination Currently in Use

Request format:

CSTT AUT,INQ

One of the following messages will be returned as a result of this request:

DPH1818 DESTINATION CSSy LIMIT xxxxx USED wwwww
This message indicates that the destination CSSy is being used, automatic switching will occur when xxxxx intervals have elapsed, and wwwww intervals have elapsed at this time.

DPH1813 STATISTICS NOT ACTIVE
Indicates that automatic statistics was not active when the request was made.

| Monitoring

| Automatic monitoring is initiated by the CSTT MONITOR request.

| Request format:

| CSTT MONITOR, {ON|OFF} = ([ACC],[PER],[EXC]) | ALL

| ON

| Data recording is initiated for specified data classes

| OFF

| Data recording is terminated for specified data classes

| ACC

| Accounting data class

| PER

| Performance data class

| EXC

| Exception data class

| ALL

| All classes

| If more than one of the class options are specified, they must be separated by commas, and grouped by brackets. If a single option is specified, the brackets are not required.

| Examples:

| 1. CSTT MONITOR,ON=ACC

| 2. CSTT MONITOR,OFF=(ACC,EXC)

| 3. CSTT MONITOR,ON=ALL

Recovery Utility Program Statistics

Upon completion of the recovery utility program, the following statistics are provided at the system console and/or master terminal:

1. The active or in-flight tasks at the time of system failure. The data for these tasks is represented by:

TASK ID	CICS/VS-generated task identification
TRANS ID	Transaction identification as found in the PCT
TERM ID	Terminal identifier
DATA COLLECTED	Total count of records recovered and written to the restart data set for the user journaled records

2. Transient data destinations. The data for the destinations is represented by:

DEST ID	Destination identification
RECOVERED	Indications as to whether the destination was successfully recovered. Error conditions that cause unsuccessful recovery are: I/O ERROR Error occurred during reading or writing of chain record UPDT DCT Logged DCT entry had invalid data NEG CNT Record count on the track was invalid CHAINING Break in chaining of tracks before last track could be read
Q COUNT	Total number of records for the destination

3. File backout entries. The data represented by each entry is:

File ID	File identification
RD/WR	Records collected due to journaling and written to the restart data set
RD UPDT	Records collected due to read-update, written to the restart data set, and subsequently backed out
WR ADD	Records collected due to write-add, written to the restart data set, and subsequently backed out

4. DL/I backout entries. The data represented by each entry is:

DL/I ID	DL/I task ID
TASK ID	CICS/VS-generated task ID
TRANS ID	Primary transaction identifier as found in the PCT
PSB NAME	DL/I program specification block name

Note: The entries for DL/I backout need not have a corresponding task entry on the active task's statistics. This is because the DL/I log entries are not counted with the other log entries which comprise the active task list. Notice should be taken of those DL/I entries which show zero data records. These are tasks which had either issued a DL/I terminate call before the system failed, or had written no records to the DL/I data-base prior to system failure.

Chapter 9. Problem Determination Utilities

This chapter describes two transactions, CSFE and CSFR (FERS), which are provided to help system programmers and IBM field engineers to diagnose hardware and software problems.

Terminal Test Function, Trace Control, and Storage Freeze (CSFE)

The terminal test function is designed to help the IBM Program Support Representative to diagnose hardware problems. In addition, the function controls storage freeze and the turning on and turning off of the four kinds of trace: system, user, FE, and activate scan.

The function is applicable to all terminals supported by CICS/VS except for the 2780, 3614, 3653, and 3735, printers (for example, 3270 printers), 3600 terminals using BTAM, and terminals communicating with a 7770 Audio Response Unit.

TERMINAL TEST

Request format:

CSFE {PRINT|END|xxx...}

PRINT

All characters printable or capable of display at the terminal are transmitted to the terminal.

END

Terminates CSFE

xxx...

Any other input is returned to the terminal (unless it is of the form of one of the other CSFE requests).

TRACE

The CSFE transaction can be used to request trace facilities.

Request format:

CSFE {PETRACE|SYSTRACE|USERTRACE}={ON|OFF}

PETRACE

Field Engineer's Trace facility

SYSTRACE

System Programmer's Trace facility

USERTRACE

User's Trace Facility

ON

Turn specified trace or traces ON

OFF

Turn specified trace or traces OFF

Successful completion is indicated by the message

DPH3301I TRANSACTION COMPLETE

Such control gives the IBM Program Support Representative flexibility in obtaining trace entries for problem determination. Details of how to obtain CICS/VS trace table entries for application programs are given in the CICS/VS Application Programmer's Reference Manual (Macro Level) and the CICS/VS Application Programmer's Reference Manual (Command Level). The CICS/VS Problem Determination Guide describes how to analyze the trace table entries

Activate Scan Trace

The operator can also use the CSFE transaction to control the activate scan trace.

Request format:

CSFE ZCPTRACE=(termid,{ON|OFF})

| ON
| The Terminal Control Program Activate Scan Routine begins to
| monitor the Activate Scan queue for a TCTTE containing the
| specified terminal identifier (termid). Whenever such a TCTTE
| is found (indicating activity on the specified terminal), a
| trace entry is made for the activate scan ZCP routine.

OFF
The Activate Scan routine stops monitoring the Activate Scan
Queue for a TCTTE containing the specified termid.

The message

DFH3301I TRANSACTION COMPLETE

indicates that the request has been successfully completed.

STORAGE FREEZE

Certain types of CICS/VS storage are normally freed during the processing of a transaction. The CSFE function can be used to optionally freeze such storage so that it will not be freed until the end of the transaction. The freezing of such storage can be an aid in the subsequent diagnosing of problems that may have occurred during execution.

Request format:

CSFE DEBUG, {TRANID=xxxx|TASKREQ=yyy}[,STGFRZ=ON|OFF]

TRANID=xxxx
identifies the transaction for which storage freeze is to apply.

TASKREQ=yyy
is an alternative method of identifying a transaction that was initiated by a PA or PF key on a 3270 display device.

For example: TASKREQ=PA1.

If the optional operand STGFRZ is omitted, storage freeze will be set OFF by default.

Note: To improve efficiency, storage freeze should be turned OFF when not required.

For further details of storage freeze, see the CICS/VS Problem Determination Guide.

Monitoring the Storage Accounting Areas

| The operator can also use CSFE DEBUG to initiate monitoring of the
| storage accounting areas.

| Request format:

| CSFE DEBUG,FAQE={ON|OFF}

| ON

| When the trace program is entered, the storage accounting areas
| will be inspected. If the inspection indicates that storage
| has been corrupted, a formatted dump is produced, and the trace
| is switched off.

| OFF

| Monitoring of Storage accounting areas ceases.

| The message

| DFH3301 I TRANSACTION COMPLETE

| indicates that the request has been successfully completed.

| **The Facility Error Recognition System (FERS)**

| The Facility Error Recognition System (FERS), an integral part of
| CICS/DOS/VS Version 1 Release 5, records communication error data and
| retrieves and displays parts of it on request.

| FERS contains two main components: a logger program, which is
| executed whenever a permanent BTAM error occurs, and a display program
| which runs as an application of CICS/VS whenever invoked by a terminal
| user. Figure 9.1 illustrates the relationship between the logger
| component, the display component, and the CICS/VS environment.

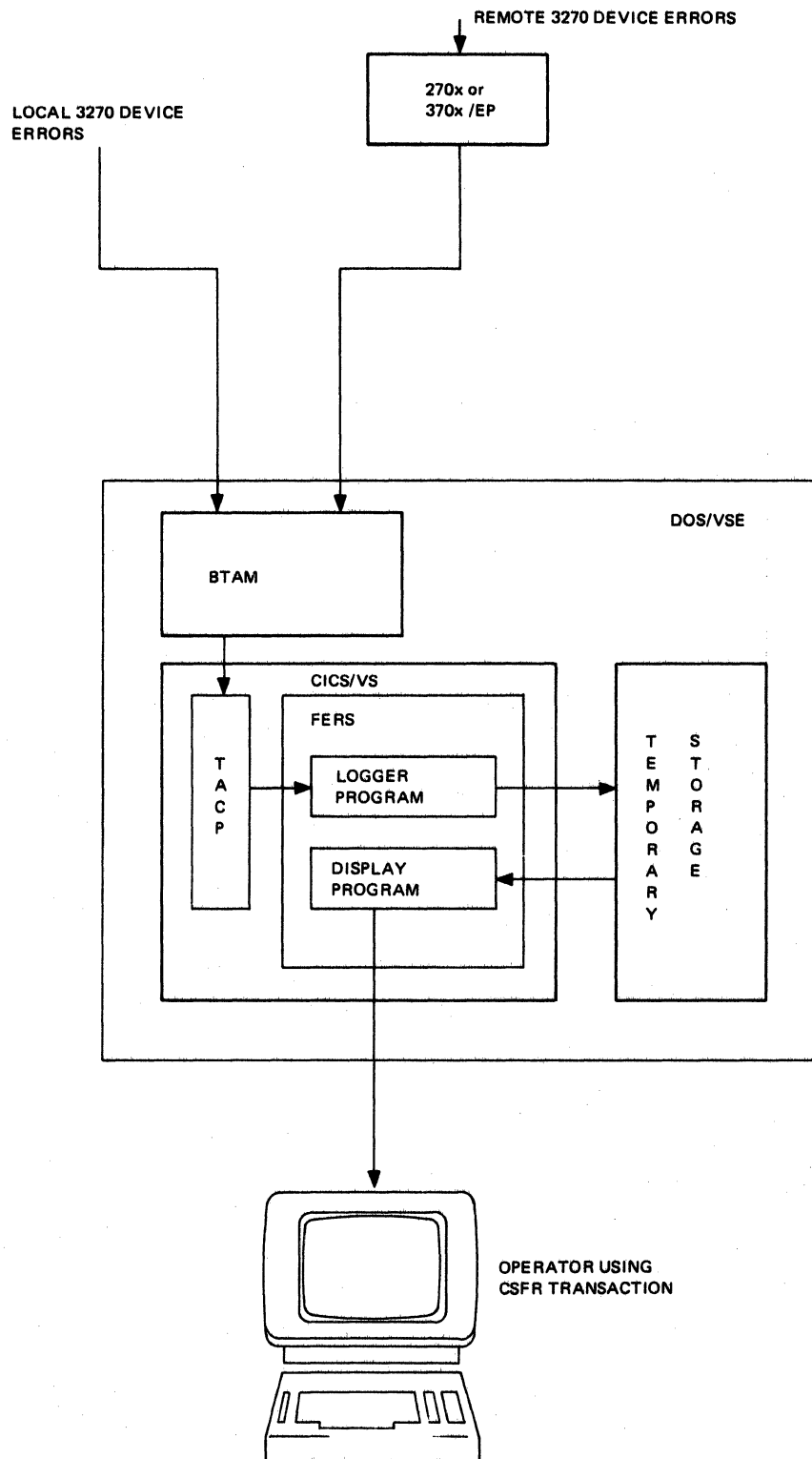


Figure 9.1. FERS Environment

| LOGGER PROGRAM

| The logger program is linked to by the Terminal Abnormal Condition Program (TACP) of CICS/VS whenever BTAM detects a non-recoverable transmission error. CICS/VS passes error data to the logger program through TACP. The logger program stores the data on temporary storage before returning control to CICS/VS.

| ERROR DATA

| Error data is stored in temporary storage, using a message ID of hexadecimal 'FE', extended by the physical address of the device in which the error occurred. If the faulty device is remote, the message is further extended by addressing characters, polling characters, or dialing characters (encrypted).

| If FERS data is to be kept between CICS/VS runs, it must be stored on auxiliary temporary storage, and the user must perform a WARM START. However, upon invocation of CSFR after a warm start, FERS automatically reorganizes the data, and deletes all records which are more than one week old.

| The following summarizes information that is recorded for use in the FERS displays:

- | • Terminal Identifier - the four-character CICS name of the terminal to which the operation was directed.
- | • Polling Address Characters - the physical polling address for remote terminals (not applicable to local terminals).
- | • CICS Error Code - status flags set in the TACLE.
- | • ECB Completion Code - completion code taken from the DECB when error occurred.
- | • BTAM OP Code - type of BTAM operation that was issued.
- | • Data Length - buffer or message area length.
- | • Residual Count - count from the CSW for the last CCW that was executed.
- | • Sense Data - sense bytes as set by the 270X transmission control unit (370X in emulation mode) or by the 327X control unit.
- | • Command Code - type of command upon which the error occurred.
- | • DECFLAG - status flags set in the BTAM Data Event Control Block (DECB).
- | • BTAM RLN - relative line number or local unit number as defined to BTAM.
- | • TP Operation Code - type of TP operation which provides further clarification of channel command code.
- | • Response Field:
 - | - for start-stop - response to addressing (first byte) and the LRC/VRC response to text (second byte);

- | - for BSC - a two-character response to addressing, ENQ, or text.
- | • Channel Status Word - the status bits from the CSW of the last CCW that was executed.
- | • Date/Time - date and time of error occurrence.

| DISPLAY PROGRAM

| The display program runs as a CICS/VS transaction, invoked by the transaction identifier CSFR. It enables an operator to study communication error data which has been stored by the logger program. The program interprets a request for a display, formats the display, and then terminates immediately after CICS/VS has acknowledged receipt of the display. Any new input from the terminal causes another transaction to be initiated. If an operator enters a complete CSFR request (a "direct" request), a display containing the error information is returned immediately. If the request is incomplete, CSFR will either issue an error message, or will enter an interactive mode, presenting a menu screen, so that the operator can select a mapped command, or study a summary of available commands.

| An operator can use FERS to obtain the following:

- | • A CSFR menu description.
- | • An overview of the CICS/VS terminal configuration for local and remote terminals
- | • Line error information
- | • Control unit error information
- | • Terminal error information
- | • Terminal dial character information.
- | • Interpretation of IBM 3270 sense information
- | • Interpretation of Channel Status Word data

| He can use FERS to investigate terminal errors in a region-remote system, if MRO is being used.

| SECURITY CONSIDERATIONS

| The request CSFR DIAL causes dialing characters to be displayed. At system initialization, the system programmer can specify FERS=YES to prevent use of the CSFR DIAL request. Alternatively, he can specify FERS=NO, to suppress FERS altogether. If FERS=ALL has been specified, however, (that is, CSFR DIAL is permitted) use of the CSFR transaction should be restricted by security code. The default is FERS=YES.

| USING THE CSFR TRANSACTION

| An operator can display the first of five CSFR menu pages (eight on a
| 12-line display) by entering "CSFR". He can then page forward, one page
| at a time, from page one to page five, by pressing the ENTER key.
| Pressing ENTER when page five is being displayed causes "wrap around" to
| page one.

| Apart from paging, the operator can perform the following operations
| from each menu page:

- | 1. Clear the screen and type another CICS/VS transaction identifier
- | 2. Type additional keywords, after CSFR on the command line, to
| complete a CSFR request
- | 3. Complete a CSFR request by overtyping an unprotected part of the
| menu page. Such unprotected fields are indicated by question
| marks.

| Any complete CSFR request produces a display of one or more pages
| (screens) of data. If the display is more than one page long, the
| operator can page forward through the data, but cannot page back.

| Eight displays can be selected by direct or mapped requests:

|
| CSFR ALL LINES
| CSFR LINE
| CSFR CTRL
| CSFR TERM
| CSFR SENSE
| CSFR CSW
| CSFR TEXT
| CSFR DIAL

| A ninth display, the SINGLE ERROR DISPLAY, can be selected from CSFR
| TERM.

| Most of these displays can be selected directly from at least one
| other data display, without either returning to the menu or clearing the
| screen and typing a new request. However, only the CSFR TERM, CSFR
| SENSE and CSFR CSW can be reselected after being left.

| If a request cannot be made from the current CSFR display, the
| operator should clear the screen and type CSFR to return to menu page 1.

| Figure 9.2 summarizes the system. Arrows indicate the order in which
| displays can be selected.

| **Note:** Neither the CSFR SENSE display nor the CSFR CSW display can be
| used to select other displays unless it has itself been selected from
| the SINGLE ERROR display.

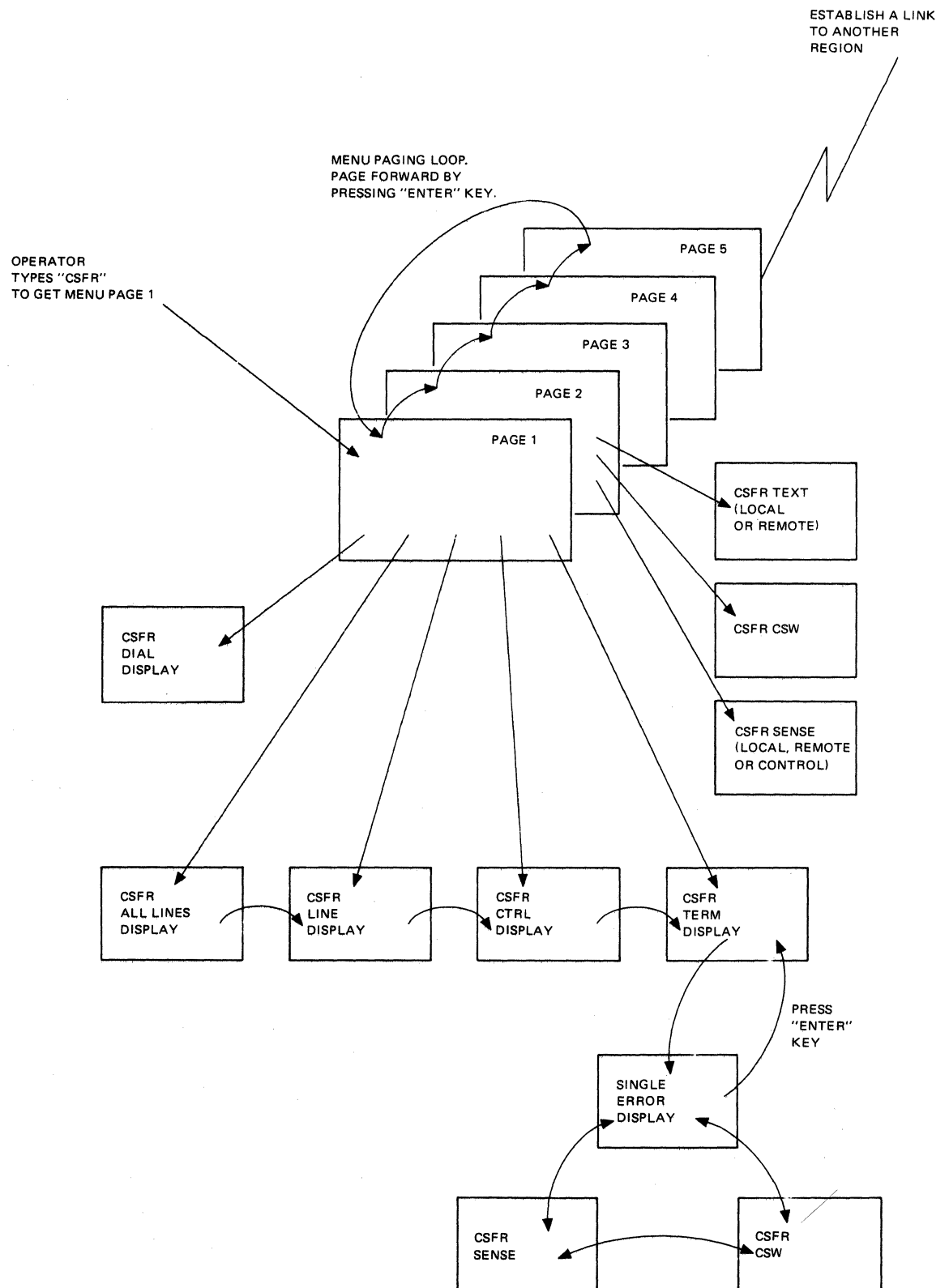


Figure 9.2. Selection of CSFR Displays

| An operator will normally use FERS to trace hardware faults back
| through the communication network. The ALL LINES display shows him if a
| single line has a significant error count; the LINE display shows which
| control units on the line have contributed to the count; and the CTRL
| display indicates the number of errors logged for each terminal on a
| specified control unit.

| Having been used to trace a faulty terminal, FERS can display a list
| (the TERM display) of the most recent errors for the terminal. More
| detailed information on a particular error can be obtained by selecting
| a SINGLE ERROR display. Finally, the IBM 3270 sense and status data in
| the SINGLE ERROR display can be interpreted on-line, using the CSFR
| SENSE, CSFR CSW, and CSFR TEXT displays.

| DIRECT REQUESTS AND DISPLAYS

| This section gives the request format of each direct CSFR command,
| defines the keywords used in the request, and shows the format of the
| display produced. The command should be entered on a cleared screen.

| The display panels show the formats of displays produced by the FERS
| DISPLAY program. The character X is used in place of real data, and the
| panels show the maximum size of each data field. For example, in the
| CSFR ALL LINES display XXXX shows that the identifier of the first
| terminal on a line can be up to four characters long.

| If a display is too large to fit on a single screen, a (?)PAGE
| FORWARD message appears beneath the operator request. If the operator
| pages forward he cannot page back again; he must repeat the original
| request.

| The following symbols appear in several of the panels, and have the
| same meanings in each:

| lll
| is the physical (hexadecimal) address of a line.

| cc
| is the addressing character of a remote control unit.

| tttt
| is the remote terminal addressing or dialing character.

| symbname
| is a symbolic name, defined in the TCT, representing the
| physical address of a device.

| Requesting an Overview of the Network

Request format:

CSFR ALL LINES

| This request produces a list (ALL LINES display) of all leased lines,
| pools of dial-up terminals, or groups of 327x terminals, which comprise
| the network as currently defined to CICS/VS.

| In the display, a line (or line group for switched line and local terminals) is given the identifier of the first terminal on the line.

| The following are also listed in the display, without an error count, but with a description of the terminal type.

- | • All BSAM devices, described as CONS, CRLP, TAPE, or DISK.
- | • The first of a group of VTAM terminals, described as VTAM.
- | • Each MRO session, described as SESS.
- | • The first of any group of MRO terminals, described as REMT.

| Error counts are cumulative from the time the data set was last initialized. The error count may reach a value of 9,999, after which it "wraps around" to zero.

| Paging is possible on a full screen display. The user may overtype the (?) in the header statement and press ENTER to see the remaining pages. The header will read "(?) PAGE FWD" if more pages exist.

| Once displayed, the user may refresh the display with the latest error data by pressing the ENTER key.

CSFR ALL LINES											
(?) PAGE FORWARD											
1ST	LINE	NBR.	1ST	LINE	NBR.	1ST	LINE	NBR.	1ST	LINE	NBR.
TERMID	ADDR	ERRS	TERMID	ADDR	ERRS	TERMID	ADDR	ERRS	TERMID	ADDR	ERRS
(?)XXXX	XXX	XXXX	(?)XXXX	XXX	XXXX	(?)XXXX	XXX	XXXX	(?)XXXX	XXX	XXXX
(?)XXXX	XXX	XXXX	(?)XXXX	XXX	XXXX	(?)XXXX	XXX	XXXX	(?)XXXX	XXX	XXXX

| Requesting Line Error Information

| Request format:

| CSFR LINE [lll|ID=symname]

| This request produces a list of error counts (LINE display) for control units on the line specified by either a line address, lll, or by the symbolic name (defined in the TCT) of any terminal on such a line.

| The LINE display provides a list of error counts for control units on the selected line. Each control unit is identified by the first terminal connected to it. The error count for the specified terminal is included within the control unit count. If the user does not know the name of the control unit for the specified terminal, the CTRL display can be selected to determine it. The display shows the number of terminals attached to each control unit. It is thus possible to recognize standalone units (such as a 3275 control unit).

Paging may be possible on full-screen LINE displays. If more pages exist, a message "(?) PAGE FORWARD" appears in the page header. The user can overwrite the ? in the header statement and press ENTER to view the remaining pages.

```
CSFR LINE XXX ID=XXXX
(?)PAGE FORWARD XXXX
```

CTRL TERMINAL NBR.				CTRL TERMINAL NBR.				CTRL TERMINAL NBR.				CTRL TERMINAL NBR.			
UNIT	ID	NBR	ERRS	UNIT	ID	NBR	ERRS	UNIT	ID	NBR	ERRS	UNIT	ID	NBR	ERRS
(?)XX	XXXX	XXX	XXXX	(?)XX	XXXX	XXX	XXXX	(?)XX	XXXX	XXX	XXXX	(?)XX	XXXX	XXX	XXXX
(?)XX	XXXX	XXX	XXXX	(?)XX	XXXX	XXX	XXXX	(?)XX	XXXX	XXX	XXXX	(?)XX	XXXX	XXX	XXXX

Requesting Control Unit Error Information

Request format:

```
CSFR [CTRL{lll cc|ID=symbname} ]
```

This request produces a list of error counts (CTRL display) for terminals on a specified control unit, cc, and a specified line, lll.

If the terminal is a remote 327X control unit, the terminal error counts represent errors detected in the remote 327X control unit. All 270X control unit detected errors are counted separately, even when identifiable with a terminal.

Display of all terminals by local 327X control unit is not supported. Specifying a local 327X terminal results in a display of only that terminal with its respective error count.

Specifying a non-327X terminal results in a display for only that terminal. Since all errors for such devices are detected by the 270X, the only count shown will be that reported as 270X sense information.

```
CSFR CTRL XXX XX ID=XXXX
(?)PAGE FORWARD XXXX
ERRORS REPORTED AS 270X SENSE XXXX
```

TERMID	ADDR	ERRS	TERMID	ADDR	ERRS	TERMID	ADDR	ERRS	TERMID	ADDR	ERRS
(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX
(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX
(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX	(?)XXXX	XXXX	XXXX

Requesting Terminal Error Information

Request format:

CSFR TERM {lll cc tttt|ID=symbname}

This request produces a time-stamped list of errors (TERM display) for the terminal specified by either lll cc tttt, or by a symbolic identifier.

The TERM display provides a time-stamped list of errors for the specified terminal. Errors are listed by date and time of occurrence. Errors logged during the 24-hour period prior to display appear brightened. The information provided about each error event varies with the product and origin of error detection as follows:

- A remote 327X display device shows two bytes of sense data when the error is detected by the remote 327X control unit or shows one byte of sense data when detected by the 270X communications control unit. In the latter case, the second byte of sense data is always X'00'. Errors detected by the 270X which are not identifiable with a specific terminal are listed with the first terminal on the control unit.
- A local 327X display device shows one byte of sense data for the IBM 327X control unit. The second byte of sense data is always X'00'.
- Non-3270 communication products show one byte of sense data for the IBM 270X TCU. The second byte of sense data is always X'00'. Errors detected by the 270X which are not identifiable with a terminal are listed with the first terminal on the line.

For each error event, a SINGLE ERROR display can be selected by overtyping the (?) for the respective error event; these displays provide additional information about the error.

Paging is supported with the TERM display. The user may overwrite the (?) in the header statement and press ENTER. After the latest error record for the specified terminal is displayed, records previously displayed are repeated. Continued paging produces an effect similar to scrolling. This feature provides a convenient method for cycling the most recent errors.

The user should note that the number of error records in the TERM display may not match the count shown for the same terminal in the CTRL display. Errors detected by the 270X, treated separately in the CTRL display, are included with the terminal errors as described above.

CSFR TERM XXX XX XXXX ID=XXXX

(?)PAGE FORWARD

REF	DATE/TIME	TP	CICS	CHAN	SENSE	ERR	REF	DATE/TIME	TP	CICS	CHAN	SENSE	ERR
NBR	OF ERROR	CD	CODE	STAT	DATA	NBR	NBR	OF ERROR	CD	CODE	STAT	DATA	NBR
(?)XX	XXX XX:XX	XX	XX	XXXX	XXXX	XXX	(?)XX	XXX XX:XX	XX	XX	XXXX	XXXX	XXX
(?)XX	XXX XX:XX	XX	XX	XXXX	XXXX	XXX	(?)XX	XXX XX:XX	XX	XX	XXXX	XXXX	XXX
(?)XX	XXX XX:XX	XX	XX	XXXX	XXXX	XXX							

When there are no errors recorded for the specified terminal, the following is displayed:

| CSFR terminal error display

| {lll cc ttt | symbname}

| has no errors recorded

| The user may enter a request for the CTRL display if further
| information regarding the control unit's errors is desired, or may
| overtype another term-id for display.

| The SINGLE ERROR Displays

| The SINGLE ERROR displays present the operator with detailed information
| about error event selected from the TERM display.

| The SINGLE ERROR display may represent an error from a remote
| communication product or a local 3270 display system device. For all
| types of errors the screen format is the same with two exceptions:

- | 1. The Sense byte data title describes the source of the data as
| follows:
 - | - LOCAL SENSE BYTE - indicates a fault, in a channel-attached
| 3270 display device, detected by the respective control unit.
 - | - 270X SENSE BYTE - indicates a fault, in a remote communication
| product, that was detected by the 270X control unit.
 - | - REMOTE SENSE BYTE - indicates a fault, in a remote 3270 display
| device, detected by the respective control unit.
- | 2. TP OP code is not shown for local 327X devices, because it is not
| applicable. For remote products, the TP operation code is
| interpreted for the BSC and start-stop line disciplines.

| The following figures show the formats of the three kinds of SINGLE
| ERROR display. The lower half of each display contains interpretation
| of the SENSE and CSW data.

| The first three figures show all possible sense and status conditions
| which can be indicated on the displays. The fourth figure shows an
| actual display, with only the relevant interpretations visible.

| To make selection on a 12-line screen:

| The user overtypes the (?) next to the channel or sense
| information for an explanation of the status code.

| The user returns to the TERM display from a DETAIL display by
| pressing ENTER.

| Selection of "channel status word" provides an explanation of the two
| hexadecimal bytes.

CSFR TERM XXX XX XXXX ID=XXXX

CHANNEL STATUS WORD XXXX
270X SENSE BYTE XXXX
RESPONSE FIELD 0000 DECFLAGS 00
CICS ERR CD XX XXXXXX
ECB COMPL CD XX XXXXXX
BTAM OP CODE XX XXXXXXXXXXXXX
DATA LTH XXXX RESIDUAL CNT XXXX
CHAN CMD XX XXXX
TP OP CD XX XXXXXXXXXXXXXXXXXXXXXXX
TIME XX:XX XXX XX TCT=XX COUNT=XX
BTAM RLN OR LV UNIT NBR XX

CHANNEL STATUS WORD XXXX MEANS:	270X SENSE BYTE	XXXX MEANS:
ATTENTION	STATUS MODIFIER	COMMAND REJECT
CONTROL UNIT END	BUSY	BUS OUT CHECK
CHANNEL END	DEVICE END	DATA CHECK
UNIT CHECK	UNIT EXCEPTION	LOST DATA
PGRM CNTRLS INTRPT	INCORRECT LENGTH	TIME OUT
PROGRAM CHECK	PROTECTION CHECK	
CHANNEL DATA CHECK	CHANNEL CTRL CHECK	
INTERFACE CTRL CHK	CHAINING CHECK	

CSFR TERM XXX XX XXXX ID=XXXX

CHANNEL STATUS WORD XXXX
LOCAL SENSE BYTE XXXX
RESPONSE FIELD 0000 DECFLAGS 00
CICS ERR CD XX XXXXXX
ECB COMPL CD XX XXXXXX
BTAM OP CODE XX XXXXXXXXXXXXX
DATA LTH XXXX RESIDUAL CNT XXXX
CHAN CMD XX XXXX
TP OP CD XX XXXXXXXXXXXXXXXXXXXXXXX
TIME XX:XX XXX XX TCT=XX COUNT=XX
BTAM RLN OR LV UNIT NBR XX

CHANNEL STATUS WORD XXXX MEANS:	LOCAL SENSE BYTE	XXXX MEANS:
ATTENTION	STATUS MODIFIER	COMMAND REJECT
CONTROL UNIT END	BUSY	BUS OUT CHECK
CHANNEL END	DEVICE END	DATA CHECK
UNIT CHECK	UNIT EXCEPTION	CONTROL CHECK
PGRM CNTRLS INTRPT	INCORRECT LENGTH	INTERVENTION REQD
PROGRAM CHECK	PROTECTION CHECK	EQUIPMENT CHECK
CHANNEL DATA CHECK	CHANNEL CTRL CHECK	UNIT SPECIFY
INTERFACE CTRL CHK	CHAINING CHECK	OPERATION CHECK

CSFR TERM XXX XX XXXX ID=XXXX

CHANNEL STATUS WORD XXXX
REMOTE SENSE BYTE XXXX
RESPONSE FIELD 0000 DECFLAGS 00
CICS ERR CD XX XXXXXX
ECB COMPL CD XX XXXXXX
BTAM OP CODE XX XXXXXXXXXXXXX
DATA LTH XXXX RESIDUAL CNT XXXX
CHAN CMD XX XXXX
TP OP CD XX XXXXXXXXXXXXXXXXXXXXXXXX
TIME XX:XX XXX XX TCT=XX COUNT=XX
BTAM RLN OR LV UNIT NBR XX

CHANNEL STATUS WORD XXXX MEANS:	REMOTE SENSE BYTES XXXX MEANS:
ATTENTION	STATUS MODIFIER
CONTROL UNIT END	BUSY
CHANNEL END	DEVICE END
UNIT CHECK	UNIT EXCEPTION
PGRM CNTRLS INTRPT	INCORRECT LENGTH
PROGRAM CHECK	PROTECTION CHECK
CHANNEL DATA CHECK	CHANNEL CTRL CHECK
INTERFACE CTRL CHK	CHAINING CHECK

RESERVED	UNIT SPECIFY	TRANSMISSION CHECK	NOT USED	INTERVENTION REQD	DATA CHECK	OPERATION CHECK
RESERVED	UNIT SPECIFY	TRANSMISSION CHECK	NOT USED	INTERVENTION REQD	DATA CHECK	OPERATION CHECK

CSFR TERM 18C C1 40 ID=KL05

CHANNEL STATUS WORD 0E00
270X SENSE BYTE 0100
RESPONSE FIELD 0000 DECFLAGS 00
CICS ERR CD 94 UNIT CHECK
ECB COMPL CD 41 COMPLETE WITH I/O ERR
BTAM OP CODE 02 WRITE INITIAL
DATA LTH 43 RESIDUAL CNT 2
CHAN CMD 02 READ
TP OP CD 06 READ RESPONSE TO ADDRESSING
TIME 12:05 MAY 7 TCT=TL COUNT=03
BTAM RLN OR LV UNIT NBR 01

CHANNEL STATUS WORD 0E00 MEANS:	270X SENSE BYTE	0100 MEANS:
CHANNEL END	DEVICE END	TIME OUT
UNIT CHECK		

Requesting Interpretation of Sense Data

Request format:

CSFR SENSE DATA=xxxx {LOCAL|CONTROL|REMOTE}

SENSE

Produces interpretation of the sense data (xxxx) supplied by the operator. The interpretation will vary according to whether the sense data refers to a local terminal, a remote terminal, or a 270x control unit.

The following figures show the forms of displays produced by the requests. As in the TERM display, inappropriate data interpretations will be invisible in an actual display.

CSFR SENSE DATA=XXXX CONTROL

270X SENSE BYTE	XXXX MEANS:
COMMAND REJECT	INTERVENTION REQD
BUS OUT CHECK	EQUIPMENT CHECK
DATA CHECK	OVERRUN
LOST DATA	TIME OUT

CSFR SENSE DATA=XXXX LOCAL

LOCAL SENSE BYTE	XXXX MEANS:
COMMAND REJECT	INTERVENTION REQD
BUS OUT CHECK	EQUIPMENT CHECK
DATA CHECK	UNIT SPECIFY
CONTROL CHECK	OPERATION CHECK

CSFR SENSE DATA=XXXX REMOTE

REMOTE SENSE BYTES	XXXX MEANS:
RESERVED	RESERVED
DEVICE BUSY	UNIT SPECIFY
DEVICE END	TRANSMISSION CHECK
NOT USED	NOT USED
COMMAND REJECT	INTERVENTION REQD
EQUIPMENT CHECK	DATA CHECK
CONTROL CHECK	OPERATION CHECK

Requesting Interpretation of Channel Status Word Data

Request format:

CSFR CSW DATA=xxxx

CSW

Produces an interpretation of the channel status word value (xxxx) entered by the operator.

The following figure shows the display produced by the CSFR CSW request. As in the TERM display, inappropriate data interpretations will be invisible in an actual display.

CSFR CSW DATA=XXXX

CHANNEL STATUS WORD XXXX MEANS:

ATTENTION	STATUS MODIFIER
CONTROL UNIT END	BUSY
CHANNEL END	DEVICE END
UNIT CHECK	UNIT EXCEPTION
PGRM CNTRLD INTRPT	INCORRECT LENGTH
PROGRAM CHECK	PROTECTION CHECK
CHANNEL DATA CHECK	CHANNEL CTRL CHECK
INTERFACE CTRL CHK	CHAINING CHECK

Requesting Interpretation of IBM 3270 Sense/Status Data

Request format:

CSFR TEXT {LOCAL|REMOTE} [SS=xxxx]

This request produces interpretation of most valid bit combinations for the sense and status bytes of a local or remote 3270 display system. The data will be interpreted immediately if it is entered as part of the request in the form "SS=xxxx". Otherwise, the STATUS INDEX display is presented, and the operator should indicate the bit pattern to be interpreted by overtyping a ? in the display. The text in the display is based on the status and sense conditions provided in the IBM 3270 Information Display System Component Description (GA27-2749). Pressing ENTER after receiving the sense interpretation causes the index to be redisplayed, unless the interpretation fills more than one page (indicated by "... " at the end of the screen). In this case, pressing ENTER causes paging.

A HELP display is provided to help the user to build a request if a particular sense/status condition does not appear in the index. The HELP display can be selected from either the local or the remote display. The following figures show the formats of the index and

interpretation displays for the CSFR TEXT REMOTE request. The LOCAL display has a similar format.

CSFR TEXT REMOTE

OVERTYPE ? OF REQUIRED FIELD

?SS=404C	?SS=40C8	?SS=C1C1	?SS=C4C4
?SS=4050	?SS=40D1	?SS=C1C4	?SS=C4C5
?SS=4060	?SS=4A40	?SS=C240	?SS=C4D8
?SS=40C1	?SS=4C40	?SS=C250	?SS=C6C4
?SS=40C2	?SS=4CC1	?SS=C2C4	?SS=C6C8
?SS=40C3	?SS=4E40	?SS=C2C8	?SS=C6D8
?SS=40C4	?SS=C140	?SS=C2D8	?SS=C840
?SS=40C5	?SS=C160	?SS=C4C1	?SS=C8C1
?SS=HELP			

SS=C4C4 DATA CHECK,UNIT SPECIFY
A PARITY CHECK OR CURSOR CHECK WAS DETECTED
BY THE ADDRESSED DEVICE ON THE DATA IT IS
SENDING TO THE CONTROL UNIT. FOR A 3274 OR 3276,
AN OPERATION TO A TERMINAL WAS UNSUCCESSFUL.

HIT ENTER TO CONTINUE

Requesting Terminal Dial Characters

Request format:

CSFR DIAL ID=symbname

This request enables the operator to discover the dial characters of a terminal if he knows its ID. If he doesn't specify an ID, he is assumed to be inquiring about his own terminal.

The CSFR response will be one of the following:

- A message giving the dial characters
- A message saying that the terminal is switched but has no dial characters
- A message saying that there is no TERMLIST
- A message saying that the terminal is a local terminal
- A message saying that the dial character display facility is disabled (because FERS=ALL was not specified during initialization).

Chapter 10. Using OS/VS Consoles as CICS/OS/VS Terminals

Under CICS/OS/VS, an OS/VS console can be used as a CICS/VS terminal. To initiate a CICS/VS transaction, the operator must use the OS/VS MODIFY command. In reply to a message from an existing transaction, the operator must use the OS/VS REPLY command.

The CICS/VS transaction which is probably of greatest importance to the console operator is the master terminal transaction (CEMT or CSMT). OS/VS console support makes it possible for a terminal to be both a system console and a CICS/VS master terminal. Furthermore, multiregion operation (MRO) enables a console to communicate with a CICS/VS system in any region. Consequently, the console operator can be a master terminal operator for several CICS/VS systems.

| If the OS/VS system has the Multi-Console Support (MCS) feature, each console can be defined to CICS/VS as a separate terminal. This enables all consoles to communicate with CICS/VS simultaneously.

| All CICS/VS console terminals must have CONSLID=xx specified at TCT generation. They can support automatic task initiation (ATI), and can receive messages from other terminals and from CICS/VS transactions.

| If an operator tries to communicate with CICS/VS from a console which has not been defined in the TCT, he will receive error message DFH2015.

In a system which has only VTAM terminals and console terminals, a console can remain active when CICS/VS and VTAM are disconnected from each other. It can thus be used to make, or break, the CICS/VS-VTAM connection without CICS/VS being terminated.

Initiating a CICS/OS/VS Transaction from the System Console

CICS/VS transactions are initiated from an OS/VS console by using the OS/VS MODIFY command.

```
| {MODIFY|F} ident,'datastring'
```

| ident

is one of the following:

- | • the jobname used to start CICS/VS if it is started by a jobstream in VS1 and MVS.
- | • the procname used to start CICS/VS if it is started by a procedure in MVS.
- | • the partition identification if CICS/VS is started by a procedure in VS1.

datastring

a string of data, starting with a CICS/VS transaction identifier. For OS/VS1 the data string should be enclosed in quotes (" ") if it contains blanks or special punctuation marks. If it does not contain such data, the quotes are not necessary. For MVS the quotes are optional. If the data string is enclosed in quotes, a quote required within the string should be replaced by two quotes.

Example

```
F CICSA,'MSG R=xxxx,M="'PLEASE SIGN OFF'",S'
```

Note: Message strings in quotes (" ") do not undergo uppercase translation during handling by the operating system. If translation is desired, the UCTRAN option must be specified in the TCT.

Multiple MODIFY commands can be entered from a console. They queue to be processed in order of entry.

Communicating with a CICS/VS Transaction from an OS/VS System Console

A CICS/VS transaction can issue READ, WRITE, or CONVERSE (WRITE, READ) commands to communicate with an operator. WRITE and CONVERSE commands transmit application program messages, but a lone READ command produces no message. The OS/VS console operator, who continues to monitor the system while performing a transaction, requires a prompt for each outstanding input request. CICS/VS provides such a prompt by producing a message of the following form each time a lone READ command is issued to an OS/VS console:

```
@nnDFH4200A jobname tranid
```

jobname

the OS/VS jobname for CICS/VS

tranid

the user-supplied transaction identifier. This tells the operator which transaction he is communicating with.

@nn

the OS/VS identifier that must be inserted in the operator's response to the transaction. Messages from a transaction that use CONVERSE commands will also be prefixed by @nn.

The operator's reply is entered using the OS/VS REPLY command. The reply can be entered at the prompted console or the master console. The format of the reply command is:

```
{REPLY|R} nn,'datastring'
```


nn

is the number of the message to which the operator is replying. The number is generated by the operating system, and is transmitted as part of the message.

datastring

is the reply to the request.

Note: Message strings in quotes (' ') do not undergo uppercase translation during handling by the operating system. If translation is desired, the UCTRAN option must be specified in the TCT.

| Under MVS, if a transaction is purged while it is awaiting an
| operator reply, the reply is canceled. Under OS/VS1, however, the
| operator must send a reply before another transaction can be initiated
| at the console.

Example of a Conversation using CONVERSE

	modify job002,'serv'	(the operator initiates user-written transaction SERV, which logs messages to service groups supporting the installation)
	@ 17 fault type?	(the operating system relays the transaction response produced by a CONVERSE command)
	R 17,'elec'	(the operator responds to request for more information. He is notifying the service group of an electrical fault)
	MESSAGE HAS BEEN SENT	

In a real conversation, the messages could be separated by other, unconnected messages.

Example of a Conversation using Write/Read

	f job002,'usid'	(operator's initial request USID is a transaction which returns information on a user, given his user-id)
	USER SIGN-ON ID=?	(application program message produced by a WRITE command)
	@25DFH4200A JOB002 USID	(the system message produced by a READ command)
	R 25,'accts1'	(operator's reply)
	USER'S NAME: J. SMITH	(transaction message using WRITE command - no reply required)
	USER'S TEL. NO.: 88999	

CICS/VS application programs should be designed, and used, with care if they are to be initiated from a system console. Messages to the console from such transactions can become interspersed with messages

from the operating system, and from other regions, making them difficult to read. In extreme cases, parts of lengthy messages can be displaced from the console screen before they have been read. As well as the OS/VS MODIFY and REPLY commands, the system programmer should consider use of the CONTROL, DISPLAY, and VARY commands when preparing console operator procedures. For information on commands and other system details he should refer to the following publications:

Operator's Library: OS/VS1 Reference, GC38-0110

Operator's Library: OS/VS2 MVS System Commands, GC38-0229

OS/VS1 DISPLAY CONSOLES, GC38-0260

OS/VS DISPLAY CONSOLES, GC38-0255

Chapter 11. Using the Processor Console as a CICS/DOS/VS Terminal

Under CICS/DOS/VS, the processor console can be used as a CICS/VS terminal, provided such support is generated in the Terminal Control Program and in the Terminal Control Table. If it is, any valid CICS/VS transaction identification code may be entered on the processor console. Of particular importance to the console operator is the master terminal transaction (CEMT or CSMT), which may be entered to control and monitor the CICS/VS system. Initiation on the processor console of transactions involving user application programs, although possible, is not recommended, because the device is the primary means of communication from the operating system.

There are two methods of initiating communication with CICS/VS; either by using the external interrupt key or by using the attention routine. However, the external interrupt key, if it is to be used, can only be used for one partition and its use for that one partition must be specified at system generation. The partition specified can either be a foreground partition or the background partition. For a partition for which the interrupt key is not specified, the attention routine must be used.

The examples given in Figures 11-1 and 11-2 illustrate the use of the interrupt key and attention routine.

If CICS/VS is running in a partition requiring the use of the attention routine then in reply to the attention-routine statement AR the operator will enter MSG BG if running in the background partition, or MSG Fn if in a foreground partition. MSG Fn is further explained in the text immediately preceding Figure 11-2.

```
Operator presses the external interrupt key
BG.....enter CSMT SHUT, NO
BG DFH1701 - C.I.C.S. IS BEING TERMINATED
BG DFH1799 - TERMINATION OF CICS IS COMPLETE
```

Figure 11-1. Example of using the external interrupt key to enter a transaction identification code on the processor console, when CICS/VS is running in the background partition.

As stated earlier if CICS/VS is running in a foreground partition, the operator in reply to the attention-routine statement 'AR' enters MSG Fn where Fn is the partition number: F1, F2, F3, F4 (see Figure 11-2).

```
Operator calls the attention routine
AR.....enter MSG F1
F1.....enter CSMT SHUT,NO
F1 DFH1701 - C.I.C.S. IS BEING TERMINATED
F1 DFH1799 - TERMINATION OF CICS IS COMPLETE
```

Figure 11-2. Example of using the attention routine to enter a transaction identification code on the processor console, when CICS/VS is running in a foreground partition.

When the system responds with the partition-identifier (BG or Fn), the operator enters the CICS/VS transaction code and data. Either upper- or lowercase may be used at entry. The maximum length to be entered is 80 bytes. The CANCEL key may be used to cancel any entry and restart typing. CICS/VS processes the transaction and sends the response back to the console.

If the transaction initiated at the console requires the operator to enter additional information, the system prints the partition code (BG or Fn) and unlocks the keyboard to await the operator's reply. The operator may enter the requested information or terminate the transaction using the CANCEL command. If the operator does not want to continue the communication with CICS/VS, he can terminate it by sending a NULL-message (END-key) to the system (see Figure 11-3). Following this, he may reinitiate communication as described earlier.

```
Operator calls the attention routine
AR.....enter MSG F1
F1.....enter CSMT
F1 WHAT SERVICE IS REQUESTED?
F1.....enter CANCEL (transaction dependent)
F1..... press the END key
```

Figure 11-3. How to terminate communication with the CICS/VS partition.

Care should be taken to respond promptly to entry requests on the console, to prevent a processor lockup caused by lack of console buffers, or to prevent other partitions from being suspended, awaiting replies.

Since the console is shared by multiple partitions, the lines of output from a CICS/VS transaction may be interspersed with messages from other partitions or from the operating system.

When using the processor console as a CICS/VS terminal, the display operator console cannot be used as a 3270 display device but must be considered a line-by-line hard-copy terminal.

Appendix A. Master Terminal Keywords

Listed below are the keywords acceptable to the master terminal transaction (CSMT). Some keywords are also acceptable to the supervisor terminal transaction (CSST) and/or the ordinary terminal operator transaction (CSOT) as well as the master terminal, as noted under meaning. Where no such note is made, the keyword is applicable only to the master terminal. For ease of use, those abbreviations given which are less than 6 characters long may be extended to up to 6 characters, using any additional characters desired; for example, NEW may be NEWC, NEWCO, NEWCPY, or NEWxxx. Ø indicates that the user is to key in a blank.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
ACQ	ACQ	Acquire: connect a designated terminal to VTAM, or in intersystem communication connect a CICS/VS system through VTAM. ACQ does not alter the service status of the terminal. If COL is not also specified, CICS/VS attempts message resynchronization after connection is established. For the 3770, the 3767, VTAM 3270, the 3270 Compatibility Mode, and the SCS Printer (SCSPRT) logical units of the 3790, if ACQ is specified COL is assumed whether it is specified or not.
ADD	ADD	Allows records to be added to the data base data set.
AKP	AKP	Specifies the activity keypoint frequency (trigger value).
ALL	ALL	<u>CSST and CSMT.</u> Changes the status of all terminals if associated with keyword TERMNL. However, processing status cannot be changed using this keyword. If used with keyword DAT, it indicates inquire about or change status of all data base data sets. Changes the priority of all terminals if associated with the keywords PRI and TERMNL. Changes the priority of all transactions if associated with the keywords PRI and TERMNL. Enables or disables all transactions, programs, files, or destinations when used with ENABLE or DISABLE and TRANSACTION, PROGRAM, DATABASE, or TRANSIENT DATA.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
AMX	AMX	Inquire about or change AMXT, the maximum number of concurrent active tasks.
AOC	AOC	Used with transaction CSTT to request all statistics be sent to destination CSSL and all statistics except total be set to zero.
AOR	AOR	Used with transaction CSTT to send all statistics to destination CSSL.
ATC	ATC	Close the auxiliary trace file.
ATP	ATP	Inquire about or change the maximum number of ATP batches that can be in process at any one time. This number does not include those being operated upon by CRDR or CWTR.
ATR	ATR	Activate (deactivate) the auxiliary trace function.
AUT	AUT	<u>CSOT, CSST, and CSMT.</u> One possible processing status of a terminal. Indicates that all pages in a page series will be written to the terminal automatically. Used also with transaction CSTT to request automatic output of system statistics.
BAT or BMAXT	BAT	Inquire about or change BMAXT, which is the limit used to determine if a new ATP batch task may be initiated.
BRO	BRO	Used to request that a data base data set be put in browse status. Allows the user to browse; that is, read records sequentially.
CANCEL	CANCEL	<u>CSST and CSMT.</u> Nullifies and terminates the master, supervisory, or single terminal operator request.
CLA	CLA	<u>CSST and CSMT.</u> Indicates that the service status of a class of terminals defined by a Terminal List Table (TLT) is to be changed. Indicates that the priority of a class of terminals defined by a Terminal List Table (TLT) or a class of transactions defined by a Transaction List Table (XLT) is to be changed.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
		Indicates a class of transactions (XLT) or programs (PLT) is to be enabled or disabled.
CLO	CLO	Used to close data base data sets, transient data extrapartition data sets, the dump data set(s), and the VTAM ACB.
CMX	CMX	Inquire about or change CMXT, the maximum number of concurrent tasks of a particular, user-specified, class.
COL	COL	Used with ACQ. COL specifies that that message resynchronization should not be performed when the terminal is connected to CICS/VS. For the 3770, the 3767, and the 3270, if ACQ is specified COL is assumed whether it is specified or not.
CONT or CNTRL	CONT	<u>CSST and CSMT.</u> Inquire about or change the service status of a remote control unit.
CUS	CUS	Changes the storage cushion to minimize overload conditions, or inquire about the size. However, cushion size does not actually change until existing cushion is released. When cushion is regained, the cushion will be the size indicated by the new value.
DAT	DAT	Open, close, inquire about, or change the status of one or more data base data sets.
DBD	DBD	A DL/I data base may be flagged, through the DBDUMP function, to prohibit updates. This allows a backup copy to be made in another partition. Following this the data base may be returned to online operation via a master terminal OPEN function.
DBR	DBR	The DBRECOVERY function causes an end of volume on the system log, and closes the DL/I data base to reads and updates. The IMS/VS data base recovery utility may then be run in another partition. Following this, the DL/I data base may be returned to online operation via a master terminal OPEN function.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
DEL	DEL	Used to request that a data base data set be put in delete status. Allows the user to delete records.
DISAB	DISAB	Used to disable a transaction, program, data base data set, or extrapartition data set.
DSPLY	DISPLAY	<u>CSST and CSMT.</u> When putting a single terminal out of service, display the transaction identification of any task that may be associated with that terminal.
DUM	DUM	Open or close the dump data set or switch the dump data set, if two were specified.
ENA	ENA	Used to enable a transaction, program data base data set, or extrapartition data set.
EXC	EXC	Used to put a data base data set in exclusive status. When used, CICS/VS file control program prevents simultaneous updates of the same logical record within a data set. Without this, protection is not provided.
IMM	IMMED	Used by the master terminal operator (CSMT) to indicate that closing of the VTAM ACB is to be immediate.
INØ or INSRV	INØ or IN SERVICE	<u>CSST and CSMT.</u> Used to request in-service status of a line, a control unit, a terminal, or an intersystem communication line/link.
INP	INP	<u>CSST and CSMT.</u> Used to change the processing status of a terminal to INPUT.
INQ	INQ	<u>CSOT, CSST, and CSMT.</u> The requested service is an inquiry. If this keyword is not entered, a change is assumed.
INT	INT	<u>CSST and CSMT.</u> When putting a single terminal (which has an associated task) out of service, attaches the requesting terminal to the task for completion; that is the requesting terminal intercepts the task.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
IOCP	IOX or IO CONTROL	IOCP is a variable that determines how many CICS/VS WAITs may occur before an OS/VS WAIT is issued. It is defined as the Input/Output Wait Count Percentage and may vary from 0 to 50.
LIN	LIN	<u>CSST and CSMT.</u> Used to inquire about the status of a line or to change the service status of a line. For a VTAM-supported terminal, a line status request will return notification that the terminal is supported by VTAM and the service status of the terminal will be returned instead.
LIS	LIS	<u>CSST and CSMT.</u> Change the processing or service status of a list of terminals defined by the parameter keyword TERMID. Change the priority of a list of terminals defined by the parameter keyword TERMID, or a list of transactions defined by the parameter keyword TRANID. Change the priority of a list of transactions (TRANID) or enable/disable a list of programs (PGRMID).
MAX	MAX	Inquire about or change the maximum number of concurrent tasks in the CICS/VS system, including active and suspended tasks. The range is from 2 to 999.
NEG	NEG	<u>CSST and CSMT.</u> Inquire about or change the negative poll delay for a terminal.
NEW	NEW	Indicates the program pointer in the Processing Program Table (PPT) will be updated to point to a new copy of the program named by PGRMID.
OFF	OFF	When associated with the keyword TRACE, turns off the CICS/VS trace facility. When associated with DAT (data base), turns off the indicated status. <u>Note:</u> OFF, when associated with TRACE can also be used by both the ordinary and the supervisory terminal operators (transactions CSOT and CSST).

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
ON	ON	When associated with the keyword TRACE, turns on the CICS/VS trace facility. When associated with DAT (data base), turns on the indicated status. <u>Note:</u> ON, when associated with TRACE can also be used by both the ordinary and the supervisory terminal operators (transactions CSOT and CSST).
OPE	OPE	Used to open data base data sets, transient data extrapartition data sets, the dump data set(s), and VTAM ACBs.
OUT	OUT	<u>CSST and CSMT.</u> Used to request out-of-service status of a line, control unit, a terminal, or an intersystem communication line/link.
PAG	PAG	<u>CSOT, CSST, and CSMT.</u> One possible processing status of a terminal. Indicates that the first page of a series will be written to the terminal when it becomes available. All other pages in the series will be written upon request by the terminal operator.
PRI	PRI	<u>CSST and CSMT.</u> Indicates an inquiry or change in priority. The priority is further defined as transaction or terminal priority.
PRO or PGRM	PRO	Inquire about or change the status of a program.
PTR	PTR	To request program isolation trace.
REA	REA	Used to request that a data base data set be put in READ status. Allows records to be read from this data set.
REC	REC	<u>CSOT, CSST, and CSMT.</u> Used to change the processing status of a terminal to RECEIVE.
REL	REL	Used to release a VTAM-supported terminal. Used also in an intersystem communication link to release a previously connected CICS/VS system.
RES	RES	Reset the date and time of day to current OS/VS or VSE system date and time of day.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
RUN or RNAWAY	RUN	Used to inquire about or change the runaway task interval. A typical runaway task interval might be 5,000 milliseconds.
SHU	SHU	<u>CSST and CSMT.</u> Terminate (shut down) CICS/VS.
SIN	SIN	Inquire about or change the status of a single terminal or program. Inquire about or change the priority of a single terminal or transaction. Enable/disable a single transaction or program.
SNAP	SNA	Produce either no dump, a PDUMP dump, or a fully formatted dump, depending on the specification at system generation or system initialization time.
SOC	SOC	Used with transaction CSTT to request selected system statistics be sent to a selected destination and that all selected statistics be set to zero after their transmission.
SOR	SOR	Used with transaction CSTT simply to request selected system statistics be sent to a selected destination.
STA	STA	Inquire about or change the value of the stall time interval. Typical stall time interval might be 20,000 milliseconds.
START	START	<u>CSOT, CSST, and CSMT.</u> Used with transaction identification CATP to activate the asynchronous transaction processor (ATP).
STOP	STOP	<u>CSOT and CSST.</u> Used to deactivate ATP.
SUS	SUS	<u>CSST and CSMT.</u> When putting a line, control unit, or terminal(s) out of service, suspend any task which is attached to the terminal(s).
SWI	SWI	Close the current dump data set and open the alternate dump data set; that is, switch dump data sets.
SWT	SWT	Used to inquire about, or change, the VSE short wait interval.

<u>Keyword</u> (First input line)	<u>Keyword</u> (Second or subsequent input line)	<u>Meaning</u>
TAS	TAS	<u>CSST and CSMT.</u> Indicates a request for a list of of all tasks currently in the system.
TERMNL	TERMINAL	<u>CSST and CSMT.</u> Indicates that service is requested for a terminal function. The terminal function will need to be further defined.
TIM	TIM	Sets the maximum time interval (in milliseconds) that CICS/VS will release control to the operating system in the event there are no transactions ready to resume processing. This is known as the partition/region exit time interval. A typical time interval might be 1,000 milliseconds.
TRACE	TRACE	<u>CSOT, CSST, and CSMT.</u> Used in conjunction with ON or OFF to start or stop logging entries in the trace table.
TRANSD	TRANSIENT	Open or close one or more transient data extrapartition data sets.
TRI	TRI	Specifies the destination trigger level (number of data records to be accumulated for a destination before automatically requesting the creation of a task to process these records).
TRMNAT	TERMINATE	<u>CSST and CSMT.</u> When putting a line, control unit, or terminal(s) out of service, terminate any task associated with the terminal(s). When not associated with any other keywords, terminate a task on a specific terminal. <u>Note:</u> When TRMNAT is used to terminate tasks, a task abend dump may be produced for each task terminated. If resources are not available to accommodate all the task abend dumps, CICS/VS can terminate abnormally.
TRNACT	TRANSACTION	<u>CSOT, and CSST, and CSMT.</u> One possible processing status of a terminal.
TRNCV	TRANSCEIVE	<u>CSOT, CSST, and CSMT.</u> One possible processing status of a terminal.
UPD	UPD	Used to request that a data base data set be put in update status. Allows records to be updated on this data set.
VTAM	VTAM	Used to request the opening or closing of a VTAM ACB.

Appendix B. CICS/VS Parameter List Keywords

Below is a list of parameter list keywords and their functions. These keywords, and the related parameters, are used as appropriate to the three classes of terminal operator to further define terminal service requests.

<u>Parameter List Keyword</u>	<u>Function</u>
CLASID	Specifies the one- or two-character suffix attached to DFHTLT to load a list of symbolic terminal identifiers previously defined in a terminal list table. The list refers to a class of terminal. Also used to specify the one- or two-character suffix attached to DFHXLT to load a list of transaction identifications defined in the program control table.
DESTID	Specifies the symbolic names of the destinations for extrapartition data sets as defined in the destination control table. It consists of four characters, not starting with "C". Used when opening or closing transient data extrapartition destinations.
FILEID	Specifies the symbolic data set names for the data sets that are defined in the file control table. For CICS/DOS/VS this name consists of from one to seven characters; for CICS/OS/VS it consists of from one to eight characters.
PGRMID	Specifies the program name as defined in the processing program table. This name consists of from one to eight characters.
SUPRID	Specifies the one- or two-character suffix attached to DFHTLT to load a list of symbolic terminal identifiers previously defined in a terminal list table. The list refers to the terminals under control of a supervisory terminal.
TERMID	Used to specify the unique four-character symbolic terminal identifiers that are generated in the terminal control table by the user to identify each terminal. When the service request relates to an intersystem communication (ISC) link, TERMID is the identifier specified in the TRMIDNT operand of the macro DFHTCT TYPE=ISLINK.

Parameter List Keyword

Function

TRANID

Used to specify the unique one- to four-character symbolic transaction identifications that are generated in the program control table by the user.

OVPARM

Applicable only to CICS/OS/VS, specifies the parameters to be used to build a DCB (which is opened with the specified destination identification). These parameters are positional; if any leading parameters are omitted, their absence must be indicated with a comma. These are the standard OS/VS parameters used to build a DCB. (See the OS/VS Data Management Macro Instructions manual for a discussion of the DCB.) The parameters must be entered in the order indicated below:

- A. OPEN Option
 - 1. OUTPUT
 - 2. INPUT
 - 3. RDBACK
- B. BUFNO
 - Value between 1 and 255
- C. RECFM
 - F - Fixed
 - V - Variable
 - U - Undefined
 - FB - Fixed blocked
 - VB - Variable blocked
 - FS - Fixed standard
 - VS - Variable spanned
 - FBS - Fixed block standard
 - VBS - Variable blocked spanned
 - FA - Fixed ASA control
 - VA - Variable ASA control
 - UA - Undefined ASA control
 - FM - Fixed machine control
 - VM - Variable machine control
 - UM - Undefined machine control
 - FBA - Fixed blocked ASA control
 - FBM - Fixed blocked machine control
 - VBA - Variable blocked ASA control
 - VBM - Variable blocked machine control
 - FBSA - Fixed blocked standard ASA
 - FBSM - Fixed blocked standard machine
 - VBSA - Variable blocked spanned ASA
 - VBSM - Variable blocked spanned machine

Parameter List Keyword

Function

D. EROPT

1. IGNORE - Accept error (ACC)
2. SKIP - Skip error (SKP)

E. LRECL

1. Numeric value, maximum 32,760 bytes

F. BLKSIZE

1. Numeric value, maximum 32,760 bytes

G. DDNAME

1. Up to eight characters



Appendix C. CICS/VS—Provided Transactions

Listed below are the identification codes of the CICS/VS-supplied transactions that can be initiated from terminals. The codes are listed alphabetically with a brief description of their purpose and a reference to the appropriate chapter in this publication.

<u>Code</u>	<u>Use</u>	<u>Chapter Reference</u>
CATP	For initiating and terminating the asynchronous transaction processor (ATP)	3
CECI	Invokes the command interpreter	3
CECS	Invokes the command syntax checker	3
CEDF	To request execution diagnostic facility	3
CEMT	Initiates the enhanced master terminal transaction	4
CEOT	Initiates the enhanced terminal status transaction	4
CEST	Initiates the enhanced supervisory terminal transaction	4
CMSG	Message switching	3,7
CRDR	To request ATP Services	3
CSPE	Invokes the terminal test function and trace facilities	9
CSFR (VSE only)	Invokes the FERS system, allowing retrieval of terminal error data	9
CSMT	Identifies the master terminal transaction	5
CSOT	Used by a terminal operator to change or inquire about processing status of own terminal	3
CSPG	For terminal paging	3
CSSF or 8888	Terminal sign-off	3
CSSN or 9999	Terminal sign-on	3
CSST	Identifies a supervisory terminal request	6

<u>Code</u>	<u>Use</u>	<u>Chapter Reference</u>
CSTT	To request system statistics or to initiate or terminate monitoring.	8
CWTO	To send messages to the processor console operator	3
CWTR	Request output from ATP	3

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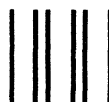
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